Gross Domestic Product – National Income of Romania 1862 – 2010. Secular statistical series and methodological foundations

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Abstract

Starting from the importance and need to investigate one of the most relevant issues regarding the structure and dynamics of the economic and social development of all countries in the world, the book focuses on Romania, from the perspective of certain synthetic indicators, aggregated at macroeconomic level, i.e. the Gross Domestic Product and the National Income, on long data series over the past 150 years, also taking into account the comparative international context, in terms of purchasing power parity. The Part One contains a synthesis, developed and completed, of GDP data for each year of the period 1862 – 2010 and also indicators resulting from the GDP, as Net Domestic Product, Net National Product and National Income. The historical research has adopted and applied, with maximum attention, criteria that substantiated the calculations, through rigorous techniques and methods of data aggregation, in order to remove certain errors that would lead to distorted results, focusing on the accuracy of evaluations, so that they would express, in the most genuine manner, the real dimension of the statistical indicators, allowing for a correct interpretation of the economic phenomena. The operations for compiling the indicators are accompanied by comments regarding the criteria and calculation methods, as well as by methodological explanations, so that the data would be able to be rebuilt in a better format, by the interested authors, should they have a more reliable and relevant statistical information about Romania. The Part Two of the book focuses on the international literature, dedicated to criticisms theoretical and methodological opinions regarding the GDP, as well as a comparative analysis of the GDP evolution in Romania, in various hypotheses, compared to other countries.

Key words: System of National Accounts; International Comparison Program; wellbeing; GDP criticism; Romania EU convergence.

JEL Classification: B15, B41, C82, E01, N10, O11

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Gross Domestic Product – National Income of Romania

1862 - 2010

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S U M M A R Y

P R E F A C E

Starting from the importance and need to investigate one of the most relevant issues regarding the structure and dynamics of the economic and social development of all countries in the world, the authors elaborated this volume, by focusing their scientific research on Romania, from the perspective of certain synthetic indicators, aggregated at macroeconomic level, i.e. the Gross Domestic Product and the National Income, on long data series over the past 150 years, also taking into account the comparative international context, in terms of purchasing power parity.

This volume is structured into two scientific parts. **Part One** represents a synthesis, developed and completed, of the work of professor Victor Axenciuc published in Romanian (*The Gross Domestic Product of Romania – 1862-2000*, Volumes I and II). The present paper contains secular statistical series and methodological arguments, detailed over more than 1300 pages. It is considered a **synthesis** because, by rigorous selection of the most significant statistical worksheets regarding the aggregate indicator – Gross Domestic Product –, a number of 250 papers were kept, leaving aside numerous calculations and preliminary tables and addendums of documents; Part One also stands for **development,** because the current research extended the analysis period until 2010 and, in addition, indicators resulting from the GDP – Net Domestic Product, Net National Product – and **National Income** were calculated for the entire period.

Part Two of the study, elaborated by George Georgescu, PhD, focuses on the international literature, dedicated to criticisms theoretical and methodological opinions regarding the Gross Domestic Product, as well as a comparative analysis, also novel in nature, of the evolution of this indicator, in various hypotheses, of the Romanian economy compared to other countries.

Our historical research has adopted and applied, with maximum attention, criteria that substantiated the calculations and that verified them, through rigorous techniques and methods of data aggregation, in order to remove certain errors that would lead to distorted results, focusing on the accuracy of evaluations, so that they would express, in the most genuine manner, the real dimension of the statistical indicators, allowing for a correct interpretation of the economic phenomena.

As it is the case of any research topic, which requires a complex approach, in time and space, the quality and utility of these secular statistical series would be validated by the future activity of scientific knowledge and by further researche astudies in the field. We would like to point out that the operations for compiling the indicators are accompanied by explanations and comments regarding the criteria and calculation methods, so that the data would be able to be rebuilt in a better format, by the interested authors, should they have more reliable and relevant statistical information available, as well as by methodological improvements.

Such research studies with outstanding results, in which the economic past of several centuries is expressed in the language of modern statistical representations, have been developed in several countries by different authors and/or institutions, most often of academic nature, measuring the evolution of synthetic macroeconomic indicators by groups of countries, continents and even at a global level.

As regards Romania, it must to be mentioned that, due to the discontinuity of data series which could be compared for longer periods of time, also caused by territorial and political regime changes that have occurred over the past 150 years, the analytic studies focusing on the macroeconomic evolutions at a national and international level are relatively few, seizing, in a compact manner, only some of the periods from the reference interval.[1]

In **Part One** of the paper, depending on the nature of the statistical information and the calculations performed, the secular interval of the topic, which focuses on the period 1862-2010, was developed on three time segments, 1862-1947, 1950-1979, and 1980-2010 respectively (corresponding to sections B, C, and D), anticipated by the presentation of a general synthesis, for the entire period (Section A).

The time segment of the period 1862-1947, which represents the backbone of the paper, was fully developed starting with the collecting and processing of the information for primary operations, up to the development of synthetic indicators.

The module of the 1950-1979 interval was developed by converting the data regarding the National Income according to the System of Material Production, presented in the official statistics, to the Gross Domestic Product.

The time segment of the period 1980-2010 was developed by transposing the data in current prices published by the National Institute of Statistics and the National Bank of Romania, to comparable prices.

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[1]Some of them were useful for our historical research, mentioning in this context the *National Income of Romania for the period 1926-1938*, a study developed by Mitiţă Georgescu for the Romanian Encyclopedia and published in its fourth volume in 1943.

At the end of Part One, the aggregate indicators deriving from GDP, e.g. the Gross National Product, Net Domestic Product and National Incomeare presented by making calculations and processing some data on the historical series, taking into account the levels of the external debt, the BoP current account balance and the consumption of fixed capital.

The building of secular retrospective series of economic statistical indicators and calculating, for the same historical period, the macroeconomic synthetical aggregates, represented, especially in the second half of the 20th century, one of the main concerns and focuses of economics and international institutions at global level.

Part Two of the paper, in a theoretical and methodological approach to the Gross Domestic Product issues, presents a short history of the System ofNational Accounts, focusing on the methodological changes of the SNA 2008 and ESA 2010, respectively, as well as their impact on revising the GDP at the level of the European Union.

In the context of the global crisis effects on certain macroeconomic and financial concepts, and from the perspective of the GDP indicator relevance, despite methodological improvements, certain limits are highlighted in this regard, as well as its interpretation distortions, sometimes strained to abusive forms and diverted for political purposes.

The attempts to address the GDP deficiencies, many of them being included in the recommendations of the Stiglitz-Sen-Fitoussi Commission, focused on establishing certain GDP complementary indicators, as well as systems of alternative indicators, suggested by different authors or international institutions, that would reflect, in a more adequate manner, the individual and social wellbeing, both for analytical and operational purposes.

At the end of Part Two our research focuses on international comparisons regarding the GDP at the purchasing power parity, highlighting Romania's position in European and/or global rankings, its evolution over time, as well as the relative and absolute gaps compared to advanced countries, adding some considerations regarding the perspectives of the real convergence with the EU Member States.

Considering that they would add value and interest to the paper, the foreword by Professor Vergil Voineagu to the Romanian edition, a historical background and acknowledgements for the same edition, are presented in the addendums.

In the elaboration of this study the authors started from the belief that the historical data, the secular indicators assessed, as well as our own interpretations, would be useful for the scientific research studies of historians, economists, sociologists and all who would develop retrospective or prospective analyses regarding the evolution of the social and economic life in Romania.

An articulated, coherent system of statistical data, implicitly of the aggregate macroeconomic indicators for long periods of time, can represent benchmarks for substantiating certain policies aimed at the present and future of our country, focusing on the characteristics of the cyclical secular evolution, as well as the nature of development gaps and convergence prospective in the European and global context. The foundation of the current processes and phenomena based on historical and economic sources, the ascertainment by synthetic indicators of the secular dynamics and continuity of the economy evolution and transformation affords a more comprehensive perspective for understanding the present and future trends of the long-term macroeconomic cycles.

Any research paper, such as the current one, enjoys the information support of certain institutions and persons. In this regard we would like to thank the National Commission of Prognosis, the National Institute of Statistics, the Institute of National Economy, and the National Institute for Economic Research of the Romanian Academy; for technical operations and type scripting we benefitted from the support of Mrs. Rădoi Alina and Mrs. Mincu Cristina, who deserve our special thanks.

At the end of this preface we consider that any rigorous scientific endeavor, as we hope ours has been, should be constantly guided by the everlasting truth expressed by Seneca: "Much remains to be done and much will remain. No one will be deprived of the chance to add something."

Historical and methodological introduction

The building of the retrospective series of the economy statistical indicators, and in particular calculating the macroeconomic aggregates during the same historical time frame represented, especially since the second half of the 20th century, one of the main interests and concerns of economics at global level. The substantiation of the current processes and phenomena based on historic-economic sources, establishing by synthetic indicators the retrospective dynamics, the secular continuity of the evolution and transformations of the economy ensure a more comprehensive perspective of the analysis and understanding of the current and future development trends, of the unfolding the long term macroeconomic cycles.

Such researches with outstanding results, where the economic history of several centuries became expressed in the language of modern statistical representations, have been developed in several countries.[2] At the same time, such comparisons are performed by groups of countries, continents, and at a global level.[3]

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[2] Studies in this field have been mostly published in prestigious periodicals: The Review of Income and Wealth, Income and Wealth, The Journal of Economic History, The Journal of European Economic History, Bulletin de l'Institut International de Statistique, Weltwirtschaftliches Archiv, etc. as well as papers in different countries: Deane, Ph., Cole, W.A., *British Economic Growth, 1688-1959. Trends and Structure*, Cambridge, 1964; Hofman, W.G., Műler, J.H., *Das Deutsche Volkseincomme 1851-1957*, Tübingen, 1959; Johansson, O., *The Gross Domestic Product of Sweden and its Composition, 1861-1955*, Stockholm, 1957; Firestone, O.J., *Canada 's Economic Development, 1867-1953,* London, 1958; Eckstein, A., *National Income and Capital Formation in Hungary, 1900-1950*, London, 1953; Bjerke, K., *The National Product of Denmark, 1870-1952*, London, 1955; Markzewski, J., *Some Aspects of the Economic Growth of France, 1660-1958*, 1961; etc. More detailed references having the same scientific value can be found in the special section of our study dedicated to the bibliography (resources).

[3] Kuznets, S., *Economic Growth of Nations*, 1977; Maddison, A., *Economic Growth in the West. Comparative Experiences*, New York, 1964; Bairoch, P., *The Economic Development in the Third World since 1900*, London, 1975; idem, *Europe's Gross National Product, 1800-1975*; Cipola, C.M., *Before the Industrial Revolution: European Society and Economy, 1000-1700,* New York, 1976; Maddison, A., *Growth and Fluctuation in the World Economy, 1870-1964*; idem, *The World Economy in the Twentieth Century*, 1989; idem, *Monitoring the World Economy 1820-1992*, 1995; idem, *The World Economy*, vol. I, *A Millenniar Perspective*, *- 2001*; vol. II, *Historical Statistics*, *- 2006*. In the 20th century, the international institutions and programs, through economics departments calculated and estimated the synthetic indicators of the national income, gross domestic product, gross national product and their components, in different countries and groups of countries, on different continents for medium and long term periods; among these we can find The Society of the Nations in the 20s-40s; after 1945, the United Nations, the Organization for Economic Cooperation and Development, the United Nations Program for Development, the World Bank, the International Monetary Fund, the European Free Trade Association, the European Union, etc. The estimations and calculations of the macroeconomic outcome indicators at international level were developed and are still being developed by different public and private educational and research institutions. All these led to the development of rich literature, statistical data analyses for numerous countries, based on different calculation methodologies and various outcomes of economic development measurement.
During the period 1860-1950, there is only one study in the Romanian literature regarding the national income of Romania, and it is for the medium term; the said paper bears the title "National income of Romania" for the period 1926-1938 by Mitiţă Georgescu for the Romanian Encyclopedia and published in its 4th volume in 1943. The data provided by this study, continue to be, seven decades later, the only source of information regarding the national income of our country until de middle of the 20th century, being utilized also by international specialized publications, by different authors that have developed secular long series regarding different groups of countries and the retrospective global economy.

In these international studies, the data regarding our country, for long periods of time, are missing or, in rare situations, they are author estimations.

Until the middle of the 20th century, the official statistics institution in Romania did not publish data regarding the national income of the country, as it was the case in most of the European countries. The lack of official data regarding the global indicator - is one of the first arguments for focusing our research on two time intervals; *the first one* - 1862-1947 to which the second volume of the paper in Romanian was dedicated[4] and in which the full calculation of the indicator was performed, and *the second* interval - 1950-2010, for which the official statistics published successive series of data regarding the National Income in the system of material production – SMP for 1950-1990 and regarding the gross domestic product[5] as of 1980;

In our research the two indicators underwent different statistical compatibility operations, which are explained into detail below, in order to obtain full statistical series - 1862-2010 - comparable with the GDP, in international currency, USD PPP 2000.

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[4] Victor Axenciuc, *Romania's Gross Domestic Product, 1862-2000*, vol. I and II, "Editura Economică" Publishing House, Bucharest, 2012.

[5] In the Romanian economic research, both the institutional one as well as the one of different authors, the calculation methodology utilized for the macroeconomic indicators in the Romanian system of national accounts started to be assimilated in the 70s, during the 20th century. Different state institutions operating in the field of synthesis, the Central Directorate for Statistics (CDS), the State Planning Committee, the Ministry of Public Finances etc., directly or by means of the institutes and departments methodology, developed researches and studies regarding the SNA, on the manner in which it is applied in the official statistics in order to compare the Romanian macroeconomic indicators with the indicators of the Western countries. It wass the period during which Romania, after two decades of isolation, was looking for financial, scientific and political opportunities etc.; it becomes a member of the International Monetary Fund, of the International Bank for Reconstruction and Development. In the Western economies the application of the SNA was expanded, becoming the official methodology of many member states of the United Nations and of its bodies.

Among the studies developed in the 70s and 80s regarding the SNA, we would like to mention the following: The methodology for calculating the national income, the gross and net domestic product in accordance with the system of national accounting, developed by SPC in 1973; the study regarding the possibilities of using in Romania a national accounts system, developed by the Center for Financial and Monetary Researches of the Ministry of Public Finances, in 1974; several papers of the Central Directorate for Statistics regarding the methodology and calculation of the gross domestic product in Romania, developed in the period 1974-1979; the Institute of National Economy also developed in 1986, with the same purpose, papers on the Problems of determining the macroeconomic summary indicators, Study Paper n. 112; Problems of international comparability of the summarized indicators, Study Paper no. 113 of 1989. SPC, the Ministry of Public Finances, CDS and the Central Institute for Economic Research developed the study having the title Unitary Methodology for Planning and Monitoring the Gross National Product, etc.

After 1990 the SNA becomes official in Romania, in the field of statistics and economy; the universities teach classes, perform scientific research in this field. The National Institute of Statistics publishes periodical papers regarding the National Accounts and numerous methodological publications. Among the papers worth mentioning: *System of National Accounts and Macroeconomic Aggregates* (1994) by I. Capanu, P. Wagner, C. Mitruţ; *National Accounting* (1995) by I. Ionaşcu; *Measuring and Comparing Economic Development* (1996) by C.Anghelache; *International Comparison of the Gross Domestic Product* (1999) by Pavel Wagner, Daniela Elena Ştefănescu; *Macroeconomic Indicators – Economic Calculation and Analysis* (2003) by C.Anghelache, I.Capanu; *National Accounting*, (2003), by C. Ivan Ungureanu; *National Accounts System* (2007), by Constantin Anghelache, Alexandru Isaic-Maniu, Constantin Mitruţ, Vergil Voineagu.

This was presented in different sections in Volume I of the Romanian edition and, in a summarized manner, adequate for this study, in section A in English.

We would like to mention that, as compared to the previous Romanian edition, which contains the 1962-2000 time series, we have updated the statistical series of the GDP, expanding it with the decade until 2010, in comparable monetary terms, based on USD PPP 2000. The absolute data regarding the GDP for this interval - 2001 - 2010 - were calculated by means of dynamic and structure indexes, with the base 100 in the year 2000, as provided by the National Institute of Statistics.

Our research regarding the calculation on long term, for historical time series, Romania's macroeconomic indicators, e.g. the national income, and subsequently the gross domestic product, dates back in the 20th century; it was developed in the period 1962-1963 as a retrospective knowledge and synthesis study of the Romanian economy, by means of national income, and the author was teaching during the period a university class of economic history. When we are young, our dreams are big and beautiful and they guide our ideals, the purpose of our activity, and, in my case, the research activity. Due to the fact that the specialized literature did not contain a calculation of the statistical series of the national income of Romania - 1860 - 1950 - series which is necessary in order to convert it to GDP, I decided to compute the national income series for this period.

After several years of investigation in the libraries, the documentation activity underlined the higher complexity of the topic and the insurmountable difficulties regarding the statistical data. The statistical information available for the period of almost one century was fragmented, incomplete, lacking in data for decades; others had a higher level of uncertainty and did not allow the direct setting of the annual series of indicators necessary in order to determine the national income. Thus, with the same level of determination I decided first of all to *establish and reestablish the statistical series of the national economy for the said period*, 1860-1950, and afterwards, based on the said data, to develop the indicators of the national income.

More than two decades of investigations in libraries and archives, more than I could have initially imagined, this new activity required and it was finalized within the Institute of National Economy of the Romanian Academy. The research of the topic has benefitted from the collaboration of certain researchers, colleagues which were mentioned in the first edition and at the end of this edition.

Finally, the historical time series, as a basis for calculating the national income, most of them complete, by sectoral structure of the national economy, comprising more than three thousand indicators for the period 1859-1947, were completed and subsequently published, by the Romanian Academy's Publishing House[6], in three volumes.

Thus, having most of the basic statistical information established, reestablished and verified, we were then able to move to the next stage and calculate the components of the national income. The topic was accepted within the research program of the Institute and it was implemented; the first draft was finalized, as a manuscript, at the end of the 80s, and it bears the title National Income of Romania in the period 1862-1938, based on the methodology of the system for material production. The activity of the fist years had as result the data necessary for each main branch of material production and services for the indicators of the national income. Several versions of the paper, based on the initial format, in the thematic structure and monetary terms were developed, and this represented, in fact, steps towards a more comprehensive document. The indicators were calculated in successive alternatives, focusing on the most appropriate format: in current prices, comparable prices of 1938 and in the prices of 1913; each price alternative has pros and cons.

In 1993 we moved to the general rebuilding of the project, from the formula of the national income to that of the gross domestic product for the period 1862-1938; in the following years, the different variants of GDP indicators were developed for the time interval 1939-2010. Depending on the nature of the statistical information and the methodology used, as shown above, the secular investigation time interval of the topic - 1862-2010 - was investigated and structured on three time intervals and three sections: the periods 1862-1947, 1950-1979, 1980-2010. Each time interval having different statistical sources and calculation methods, was made compatible at a later date. For these there are three corresponding results sections, and they follow the same order: **Section B-1862-1947; Section C-1950-1979 and Section D-1980-2010;**

The first time interval, **1862-1947**, focused most on the research activity, documentation, development of the methodology, calculation of the gross domestic product starting with the primary operations until the final ones; the final format – *the Romanian GDP 1862-1947* - is Volume II, of the previous edition, having 875 pages, based on which the summarized version was developed which is presented in **Section B.**

The second interval of the topic comprises the period **1950-1979**, for which the calculations focused on the conversion of the data regarding the national income, presented in

[6] Victor Axenciuc, *Evoluţia economică a României. Cercetări statistico-istorice 1859-1947*, vol. I, Industria şi construcţiile, published in 1992; vol. II, *Agricultura*, edited in 1996 and vol.III, *Monedă-Credit-Comerţ-Finanţe Publice*, published in 2000.

the official statistics, in accordance with the system of material production - SMP - to the series of the gross domestic product according to the national accounts system - NAS - they are presented in **Section C.**

The third and last time interval focuses on the decades **1980-2010**. The NIS provides data for the entire interval, 1980-2010, regarding the gross domestic product in current prices; they were translated in comparable prices, in lei, in **Section D.**

With the view of having a full and unitary, continuous and comparable presentation, the series of the gross domestic product indicator in the three sections - B, C and D - were cumulated in the single series of the period 1862-2010, after the data in lei expressed in the prices of different years were converted, using the presented methods, in international dollars, at the purchasing power parity – PPP of the year 2000. Thus, the **full presentation of the 1862-2010 series of the gross domestic product**, breakdown on resources, expressed in indicators and indexes, in dynamics and structures is shown in Section A of general synthesis.

In order to make compatible the macroeconomic indicators for the period -1862-2010 - the calculation data of the three sections, expressed in lei in constant prices for each interval, that allowed also comparison within the series, were converted, in accordance with the methods specified in each section, in international currency - dollars at the purchasing power parity of the year 2000, thus ensuring the compatibility of the entire series.

We decided to convert the national currency in dollars PPP 2000, taking into account the possible comparisons that the reader might want to perform with similar indicators from other countries, expressed in USD PPP. Of course, with the available means a single researcher does not have the possibility to calculate the lei versus dollars purchasing power parity of such a long period of time.

The method that we used, namely the conversion of the GDP from the national currency - lei - into the international currency - dollars PPP - was a simplified one; for the period 1862-1947, during which the indicators are expressed in comparable prices - lei gold 1913, the conversion was done, as it is explained into detail in the Special Introduction, by transforming them in dollars gold 1913, close to the purchasing power, and multiplying the obtained data by depreciation coefficients of the US dollar until 2000; for the periods 1950-1979 and 1980-2010, the conversion of the gross domestic product indicators from lei comparable prices to dollars PPP 2000, was done based on the converter of the year 1975, namely of 8.8 lei = 1 dollar PPP, determined in the 3rd round of the International Comparisons Program[7], as follows: the gross

[7] The baseline data included: The Economic Memorandum of Romania 1983 and the International Comparisons Program, round III of 1975.

domestic product indicators series 1950-1979, expressed in comparable prices in lei 1963, were transformed based on the price index comparable lei price 1975 and were divided to the 1975 PPP converter, respectively 8.8 lei = 1 dollar PPP; the GDP series in dollars PPP 1975 thus obtained was multiplied by the depreciation coefficients of the US dollar between 1975 and 2000, thus resulting the 1950-1979 GDP series in dollars PPP 2000[8].

The series of the gross domestic product indicators for the years 1980-2000, was converted in dollars PPP 2000, as follows: for the period 1980-2000, the gross domestic product calculated in comparable lei 1990, as highlighted in the Introduction was updated by using the price index, to the level of the comparable prices of 1975; the data were divided to the 8.8 converter, building the GDP 1980-2000 series in dollars PPP 1975, which in turn was multiplied by means of the depreciation coefficients of the GDP USA dollar between 1975-2000, finally resulting in the 1980-2000 GDP series, in PPP dollars 2000; the GDP series for the last decade of the period, respectively 2001-2010, due to the lack of official data regarding the GDP in comparable prices and of the official deflator of the current prices (not published by the official statistics), in order to obtain the GDP figures for the period 2001-2010, we utilized the GDP indexes of the period with a fixed base (100% in 2000) which were successively multiplied with the available data of the GDP by resources for the base year 2000.

The simplified method that we applied in order to be able to compare the GDP indicator expressed in international comparable currency proved to be efficient. It was also applied by some of the foreign researchers.

Despite all the differences between the calculation and conversion methods for the GDP in dollars PPP of the four intervals: 1862-1947, 1950-1979, 1980-2000 and 2001-2010, the statistic series of the GDP indicator per capita 1862-2010, in dynamics and structure, ***does not have, as shown, any discrepancies*** in the evolution or any disagreements with the temporal thresholds between them. We consider that this is the essential argument of the plausible nature of the adopted solutions. For the sake of confirmation, we show that the thresholds between the periods, that marked the change of the calculation methods and conversion solutions, the years

[8]After 1975 the International Comparisons Program had some other rounds as well, out of which the one related to the calculation of the lei-dollar PPP converter, the one of 1990 reported 10.678 lei = 1 dollar PPP. This new converter could have been utilized in order to transpose the Romanian GDP from comparable lei 1990 to dollars PPP 1990. The calculations of the conversion method of the International Comparisons Program (ICP) were improved (see OECD, Angus Meddison, *The World Economy*, vol.1, 2006, pag.190); the data were adjusted, among other, by a coefficient which corrected the lower quality of the goods from Eastern European countries, respectively from Romania as well, what we do not know if it was done in round III of the 1975 ICP. We could not obtain this coefficient. Therefore, even though the 1990 converter was also utilized, the comparisons of the Romanian GDP indicators for the period 1950-2000 "benefited" from an important level of relativity.

1947 and 1950, 1979 and 1980, the differences between the size of the GDP per capita and its structure by resources are plausible. Thus, when in 1950, after the post-war recovery, the economy achieved the level of 1939, the GDP per capita in dollars PPP 2000 stood at 1342 dollars as compared to 1164 dollars in 1939, a plausible and acceptable difference, especially after a decade of major structural, economic and social transformations. At the same time, at the threshold between the two methods of calculation, between 1979 and 1980, the same indicator is expressed in 1979 as 8974 dollars and in 1980 as 8939 dollars, the difference being also normal, acceptable.

Once again we would like to underline that all these prove that the statistical methods and solutions were substantiated in an adequate manner and were used correctly, being confirmed, with some reserves, by the result expressed in dynamics and structure of the GDP series for the entire period of 1862-2010.

In conclusion, with these methodological applications we conclude the part I point 1 containing, in a summarized manner, the four sections for calculating the aggregate outcome - GDP - of Romania for one and a half century.

As compared to the Romanian version, this paper has deepened even further the research, calculating the aggregates of the GDP, for the same time interval and with the same value parameters – international dollars PPP 2000 – the Gross Domestic Product and National Income, respectively the Net National Product, based on the revised version of the National Accounts System of 1955.

The topic of synthetic macroeconomic indicators, GDP, NNP, GNP, etc. enjoyed a long theoretical and methodological debate, ever since the first aggregate drafts for measuring the national economic activities and international comparisons. From the content, the area of coverage, the efficiency of measurements, the value of results etc., of the synthetic aggregates, some verified in the historical practice of different countries, the virtues as well as the limits of these statistical instruments were revealed. To this regard, in order to ensure as added value of knowledge to the users of data regarding the gross domestic product of Romania, the part II of this paper envisages a summary of the main theoretical and methodological debates, from the international specialized literature regarding the global outcome aggregates, as well as a section with data showing the position Romania within the international comparisons rankings, according with certain models and values of economic and social indicators.

This analysis of the concepts, criticisms and solutions for improving the synthetic aggregates, highlighted in the publications of highest scientific level, has not only the value of updating the current Romanian preoccupations in the field, but it also stimulates the researchers reading it to debate these important topics. Furthermore, by a more comprehensive and documented insights, the users of the statistical information from the first part of the study will be able to evaluate, in a more critical manner, the calculations and data value, as well as having the possibility to improve the methodology; the authors welcome the potential comments[9].

As concerns the proceedings of presenting the data series, of classifying the components of the statistical and methodological matter, solutions with a high level of systematization and clarity were accepted; the statistical situations are assigned with figures and letters as reference and identification indicatives.

As concerns the framework of the research methodology, the principles and criteria, the calculation methods which were utilized, the territorial and temporal framework, the investigation area, the prices in comparable lei and dollars PPP, etc. - these are mostly presented in the Introductions of each section; the summary of the tables is presented in pairs, having a double approach: in the series of years averages (four-six years), being more concentrated, on one page, and in annual series, in an extended format on three-four pages.

The changes in territory and potential, of the period 1862-1947, in three moments (years 1918, 1940, 1945) led to extra economic modifications in the size of the indicators, which does not ensure their comparability for the entire period; these historical thresholds are marked in tables with a horizontal line for the year when the border was moved. In order to overcome this obstacle, the indicators were divided to the number of inhabitants, solution which allows, with some reserves, to compare the data for the time interval 1862-2010.

[9] *Beyond the GDP*, June 2016, Debate at National Institute of Statistics, where Andrei Tudorel, Ph. D., President of NIS, and Ilie Dumitrescu, Ph. D., Director of NIS held a presentation.

PART ONE

Section A

THE GROSS DOMESTIC PRODUCT OF ROMANIA DURING 1862-2010

Overall synthesis of statistical series

The statistical series of **Section A**,summarizing the indicators of the gross domestic product, for the period 1862-2010, focuses on presenting, in dynamics and structure, the most important economic processes - which can be expressed statistically - of Romania's evolution within the historical borders of the state. The analysis of the macroeconomic aggregates from the constitutive sections of the investigated periods, 1862-1947, 1950-1979 and 1980-2010 provides through the multitude of indicators resulting from research, a broad field of considerations and conclusions; this focuses on the nature, profile and structure of the economy, the stages and level of its development during different periods of time, as well as the specificity of this development, in comparison with other countries, on the way of modern and contemporary history.

Such analysis and interpretations of the various indicators, in the context of knowing the economy, will contribute to positioning the study of the Romanian economy on a better base of arguments, by measuring and using the statistical approach of the cardinal processes of development. On the one hand, by measuring the components of the economic and social evolution, we will be able to confirm different characteristics of the national economy, formulated by the historical science until the present moment, and on the other hand we will be able to highlight new characteristics and aspects of its past which are meant to enrich its image; at the same time they will invalidate certain opinions of the same nature, which, in time, have become opinionated in the interpretation of the stage, level or profile of the national economy development.

We believe that it is equally important that in international statistics, through the data series of the Romanian GDP, provided by this paper for a period of 150 years, could be complemented on long periods of time, and substituting the uncertain data, not always confirmed. Therefore, the series of the gross domestic product indicators, especially during the second half of the 19th century, until the first half of the 20th century, will be able to introduce Romania in the international retrospective statistics, for knowledge and comparison.

The indicators of section A, of the entire project, which are presented in further 21statistical tables – A 1-A 21, are generally presented in absolute values: millions of USD PPP 2000 and in USD per capita in relative terms of structure, e.g. shares and indexes.

The groups of indicators which were selected in order to present in the best possible manner, the trends of the economy's evolution by means of the global outcome aggregate, are presented in the beginning through tables A 1 and A 2; the gross domestic product expressed in million USD, USD per capita and per employed capita, and indexes, on series of averages of the years and succesive annual series of the period 1862-2010; they represent the most focused measurement of the evolution of added values produced by the entire social and economic activity of the country; the global indicator is at the beginning of the statistical tables which follow: the elements of the basic equation for determining the gross added value are presented: production, intermediary consumption and the gross added value as the final result of the economic activities; for more detailed analyses which are necessary for our subsequent calculations in order to determine the indicators, the gross domestic product, the net domestic product - respectively the national income, the gross added value indicator was broken down in consumption of fixed capital and net added value.

It follows tables presenting the statistical series of the gross added value according to the two sectors - production of goods and production of services, averages of the years and annual series, as well as the structure of the above mentioned components, as shares in the total added value by following the same parameters; this group of statistical situations highlights the contribution of the two fundamental categories of resources in the total gross added value and the trends which are significant for changing the ratio between them, as a reflection of the transformations which took place in the Romanian economy and society, during the reference period; the following groups of statistical tables present, in accordance with the same structure and purpose, the components of the gross added value of the production of goods by branches: agriculture, industry and constructions, as well as of the services activities by branches: transportation and communications; commerce; financial activities and insurances; public administration, defence; education, culture, health, social assistance; real estate transactions, others; in accordance with the classification of the national accounts.

Two groups of statistical situations, following the same time and value parameters, present the series of the gross added value in the two sectors - of production of goods and production of services in relation to the number of inhabitants and employed inhabitants. Dividing the gross added value to the number of persons employed in the production of goods in a sector - agriculture, industry and constructions - on the one hand and services on the other hand, highlight for the first time in the historical research of global indicators in Romania, the level of efficiency, the labor productivity, in the main sectors of the economy on long term; these indicators, by means of analyses and comparisons, can reveal during the research, new aspects, of high scientific value, not only from the quantitative perspective but also from the qualitative one, of economic and social evaluation.

Dividing the GDP to the number of inhabitants shows the absolute level of created value, per unit of population and it is easy to represent and understand, including international comparisons. The GDP per capita or employed person shows the qualitative side of the aggregate, and the measured outcome of the value producer, namely the productivity and labor force efficiency per unit. In accordance with this indicator, in a century and a half, as the national economy moved from manual labor and technique, the assimilation of automation, modern technique and technology and the industrialization of the economy, in 2010 the GDP per employed person, expressed in comparable monetary values, was 27 times higher than in the initial calculation year 1862 (Table A 2, column 6).

In order to have a general view of the gross added value per person employed in the production of goods and services, we have developed, based on table A 14, a genuine statistical situation. This shows, in comparable dollars, per capita employed in a sector, the production of gross added value in six selected years of the period 1862-2010 and the magnitude of the amounts.

Gross added value *per employed person in the branch* -
in the production of goods and services, in USD 2000 and coefficients,
selected years in the period 1862-2010

Years		Total average gross added value per employed person		Gross added value in the production of goods per employed person in the branch								Gross added value in the production of services	
				total		agriculture		industry		constructions			
	no. of years	USD	DC	USD	DC	USD	DC	USD	DC	USD	DC	USD	DC
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1862	1	1071	1.0	852	1.0	688	1.0	2910	1.0	3874	1.0	3487	1.0
c.comp		1.0		0.8		0.64		2.72		3.63		3.26	
1912	50	2206	2.1	1585	1.9	985	1.4	6398	2.2	11537	3.0	7235	2.1
c.comp		1.0		0.72		0.45		2.90		5.23		3.28	
1938	76	1903	1.8	1427	1.7	828	1.2	6413	2.3	16189	4.2	5011	1.4
c.comp		1.0		0.75		0.44		3.37		8.59		2.63	
1960	99	4794	4.5	4211	4.9	2233	3.2	11846	4.1	7108	1.8	8247	2.4
c.comp		1.0		0.88		0.47		2.47		1.48		1.73	
1990	128	18376	17.2	18225	21.4	14662	21.3	21384	7.3	16176	4.2	18773	5.4
c.comp		1.0		0.99		0.80		1.16		0.88		1.02	
2010	149	28891	27.0	24596	28.9	9845	14.3	40494	13.9	38036	9.8	34669	9.9
c.comp		1.0		0.85		0.35		1.48		1.32		1.20	

Source: Calculated based on table A 14

Notes: c.comp = comparative coefficients; DC = dynamics coefficients

The purpose of our research is not the analysis, for which we will suggest only certain statistical "surprises" that the researches in the field din not highlight and comment, although they are very important for the economic science, especially on a secular basis. We would like to signal the ratio between the gross added value and the gross added value per employed person in the branches of material production - agriculture, industry and constructions, as well in the production of services in the selected years; the indicators are unexpectedly varied in size and proportion. For a better understanding we used coefficients instead of percentages, both for comparing c.comp horizontally as well as for the dynamic - DC - vertically. Thus, in the first year, 1862, the gross added value per employed person as compared to the economy's average, 1071 USD - in the production of goods was of 852 USD, and for services it was of 3874 USD, 3.3 times higher.

The secular examination of the components of social production, for the Romanian economy, that started the development, initially, from an agrarian structure mainly for self-consumption, highlights, due to the size, the structure and the modification of the trends of all mentioned indicators, the radical changes following the modernization and development of the country.

If the gross production factor, in the context of the calculation of the newly created value has the meaning of the basic term, in the long term approaches, as total value of production and services, by comparing its size, the total and per capita evolution, and its structure, by branches-resources, this indicator can acquire high analytical importance; the social production size of the country for certain periods of time, in terms of total values and per capita, as an expression of valorizing the potential of the national economy, as well as different aspects parallel to those revealing the added value can be followed.

Table A 1

Total gross domestic product, per capita and per employed person, in USD PPP 2000 and indexes, averages of the years[1], 1862-2010

Averages of the years	Gross domestic product					
	total		per capita		per employed person	
	million USD	indexes	USD	indexes	USD	indexes
1	2	3	4	5	6	7
1862-1866	2261	**100**	554	**100**	1064	**100**
1867-1871	2540	112.3	598	107.9	1143	107.4
1872-1876	2926	129.4	667	120.4	1269	119.3
1877-1881	3492	154.4	770	139.0	1458	137.0
1882-1886	4185	185.1	860	155.2	1619	152.2
1887-1890	4775	211.2	915	165.3	1717	161.4
1891-1895	5582	246.9	1015	183.2	1896	178.2
1896-1900	5599	247.6	954	172.2	1774	166.7
1901-1905	6298	278.5	998	180.1	1850	173.9
1906-1910	7411	327.8	1094	197.5	2014	189.3
1911-1914	8829	390.5	1202	217.0	2206	207.3
1920-1924	14351	**100**	896	**100**	1534	**100**
1925-1929	18365	128.0	1070	119.4	1831	119.4
1930-1934	19424	135.3	1054	117.6	1807	117.8
1935-1939	22338	155.7	1144	127.7	1958	127.6
1940-1944	14873	103.6	1103	123.1	1878	122.4
1945-1947[3]	10621	37.4	672	39.5	1080	70.4
1950-1954	28375	**100**	1700	**100**	3233	**100**
1955-1959	39869	140.5	2241	131.8	4220	130.5
1960-1964	55653	196.1	2977	175.1	5808	179.6
1965-1969	84700	298.5	4350	255.9	8620	266.6
1970-1974	129653	456.9	6270	368.8	12976	401.4
1975-1979	179123	631.3	8214	486.1	17465	540.2
1980-1984	211036	744.0	9401	553.0	20242	626.1
1985-1989	234305	826.0	10216	601.0	21811	674.6
1990-1994	182433	643.0	7950	467.6	17474	540.5
1995-2000	183595	647.0	8145	479.0	20496	634.0
2001-2005	211147	744.1	9685	569.1	25263	781.4
2006-2010	273438	963.7	12716	747.9	32027	990.6

Source: Autor's calculations based on the data in table A2

Notes: [1] Calculated based on the data in table A2

[2] The horizontal lines are continuous during the period which marks the territory changes, respectively Romania's changes in potential; the non-continuous lines show the of data for certain years.

[3] Base 100 the average of the years 1950-1954

Table A 2

Total gross domestic product, per capita and per employed person, in USD PPP 2000 and indexes, annual series, 1862-2010

Years	Gross domestic product					
	total		per capita		per employed person	
	million USD	indexes	USD	indexes[1]	USD	indexes[1]
1	2	3	4	5	6	7
1862	2264	**100**	563	**100**	1083	**100**
1863	2479	109.5	613	108.9	1177	108.7
1864	2577	113.8	630	111.9	1208	111.5
1865	1997	88.2	483	85.8	926	85.5
1866	1987	87.8	483	85.8	925	85.4
1867	2431	107.4	585	103.9	1120	103.4
1868	2652	117.1	632	112.3	1209	111.6
1869	2429	107.3	572	101.6	1092	100.8
1870	2539	112.2	591	105.0	1128	104.2
1871	2648	117.0	611	108.5	1165	107.6
1872	2653	117.2	610	108.3	1162	107.3
1873	2823	124.7	648	115.1	1233	113.9
1874	2784	123.0	638	113.3	1214	112.1
1875	3237	143.0	736	130.7	1398	129.1
1876	3132	138.3	704	125.0	1337	123.5
1877	3227	142.5	720	127.9	1366	126.1
1878	3331	147.1	743	132.0	1406	129.8
1879	3413	150.8	754	133.9	1426	131.7
1880	4264	188.3	938	166.6	1773	163.7
1881	3224	142.4	697	123.8	1317	121.6
1882	4297	189.8	917	162.9	1729	159.6
1883	4029	178.0	844	149.9	1590	146.8
1884	3494	154.3	719	127.7	1353	124.9
1885	4281	189.1	863	153.3	1624	150.0
1886	4822	213.0	956	169.8	1797	165.9
1887	4543	200.6	889	157.9	1670	154.2
1888	4778	211.1	923	163.9	1732	159.9
1889	4854	214.4	923	163.9	1731	159.8
1890	4926	217.6	926	164.5	1735	160.2
1891	5118	226.0	949	168.6	1776	164.0
1892	5564	245.7	1026	182.2	1917	177.0
1893	5434	240.0	991	176.0	1850	170.8
1894	5872	259.4	1059	188.1	1977	182.5
1895	5921	261.5	1051	186.7	1959	180.9
1896	6129	270.7	1073	190.6	2000	184.7
1897	5161	228.0	891	158.3	1657	153.0
1898	6223	274.9	1061	188.5	1974	182.3
1899	4397	194.2	738	131.1	1371	126.6
1900	6086	268.8	1007	178.9	1867	172.4

Years	Gross domestic product					
	total		per capita		per employed person	
	million USD	indexes	USD	indexes[1]	USD	indexes[1]
1	2	3	4	5	6	7
1901	6412	283.2	1047	186.0	1941	179.2
1902	6293	278.0	1016	180.5	1883	173.9
1903	6522	288.1	1037	184.2	1919	177.2
1904	5101	225.3	786	139.6	1466	135.4
1905	7161	316.3	1105	196.3	2041	188.5
1906	7818	345.3	1187	210.8	2191	202.3
1907	6402	282.8	958	170.2	1764	162.9
1908	6971	307.9	1030	182.9	1896	175.1
1909	6935	306.3	1010	179.4	1861	171.8
1910	8931	394.5	1282	227.7	2357	217.6
1911	8824	389.8	1245	221.1	2286	211.1
1912	9088	401.4	1256	223.1	2304	212.7
1913	9211	406.8	1253	222.6	2298	212.2
1914	8192	361.8	1054	187.2	1935	178.7
…………						
1920	11826	**100**	761	**100**	1302	**100**
1921	12960	109.6	824	108.3	1410	108.3
1922	14638	123.8	917	120.5	1569	120.5
1923	16039	135.6	990	130.1	1694	130.1
1924	16290	137.7	991	130.2	1696	130.3
1925	16660	140.9	998	131.1	1709	131.3
1926	18472	156.2	1091	143.4	1868	143.5
1927	18671	157.9	1089	143.1	1864	143.2
1928	18372	155.4	1056	138.8	1808	138.9
1929	19650	166.2	1114	146.4	1907	146.5
1930	19811	167.5	1097	144.2	1896	145.6
1931	20272	171.4	1116	146.6	1910	146.7
1932	18623	157.5	1011	132.9	1730	132.9
1933	18981	160.5	1018	133.8	1742	133.8
1934	19433	164.3	1027	135.0	1759	135.1
1935	21039	177.9	1102	144.8	1887	144.9
1936	21892	185.1	1133	148.9	1940	149.0
1937	22910	193.7	1173	154.1	2008	154.2
1938	22654	191.6	1147	150.7	1963	150.8
1939	23197	196.2	1164	153.0	1991	152.9
1940	15038	127.2	1131	148.6	1938	148.8
1941	15533	131.3	1164	153.0	1962	150.7
1942	14512	122.7	1076	141.4	1826	140.2
1943	16631	140.6	1219	160.2	2086	160.2
1944	12649	107.0	923	121.3	1580	121.4
1945	9863	83.4	627	82.4	1007	77.3
1946	9647	81.6	611	80.3	982	75.4
1947	12352	104.4	777	102.1	1252	96.2
…………						

Years	Gross domestic product					
	total		per capita		per employed person	
	million USD	indexes	USD	indexes[1]	USD	indexes[1]
1	2	3	4	5	6	7
1950[2]	21897	**100**	1342	**100**	2613	**100**
1951	28059	128.1	1704	127.0	3265	125.0
1952	27979	127.8	1682	125.3	3230	123.6
1953	31523	144.0	1871	139.4	3511	134.4
1954	32419	148.1	1899	141.5	3544	135.6
1955	40099	183.1	2315	172.5	4282	163.9
1956	34884	159.3	1994	148.6	3672	140.5
1957	41495	189.5	2327	173.4	4407	168.7
1958	38947	177.9	2157	160.7	4111	157.3
1959	43921	200.6	2410	179.6	4629	177.2
1960	48168	220.0	2617	195.0	5050	193.3
1961	52238	238.6	2813	209.6	5479	209.7
1962	54096	247.0	2896	215.8	5647	216.1
1963	58988	269.4	3135	233.6	6142	235.1
1964	64774	295.8	3422	255.0	6720	257.2
1965	70122	320.2	3685	274.6	7241	277.1
1966	78007	356.2	4075	303.7	7971	305.1
1967	85570	390.8	4437	330.6	8683	332.3
1968	91988	420.1	4664	347.5	9320	356.7
1969	97815	446.7	4888	364.2	9885	378.3
1970	107592	491.4	5312	395.8	10842	414.9
1971	115570	527.8	5646	420.7	11627	445.0
1972	130348	595.3	6308	470.0	13072	500.3
1973	146695	669.9	7043	524.8	14638	560.2
1974	148062	676.2	7041	524.7	14703	562.7
1975	151409	691.5	7127	531.1	14915	570.8
1976	168205	768.2	7843	584.4	16447	629.4
1977	178309	814.3	8233	613.5	17372	664.8
1978	194780	889.5	8912	664.1	18929	724.4
1979[2]	202913	926.7	8957	667.4	19662	752.5
1980	198465	906.4	8939	666.1	19175	733.8
1981	198606	907.0	8885	662.1	19140	732.5
1982	206650	943.7	9194	685.1	19816	758.4
1983	219220	1001.1	9720	724.3	20961	802.2
1984	232237	1060.6	10265	764.9	22117	846.4
1985	232024	1059.6	10211	760.9	21918	838.8
1986	237399	1084.2	10402	775.1	22249	851.5
1987	239415	1093.4	10437	777.7	22335	854.8
1988	238305	1088.3	10337	770.3	22055	844.0
1989	224380	1024.7	9692	722.2	20498	784.5
1990	211813	967.3	9127	680.1	19539	747.8
1991	184409	842.2	7954	592.7	17097	654.3
1992	168096	767.7	7376	549.6	16073	615.1
1993	170599	779.1	7497	558.6	16954	648.8

Years	Gross domestic product					
	total		per capita		per employed person	
	million USD	indexes	USD	indexes[1]	USD	indexes[1]
1	2	3	4	5	6	7
1994	177249	809.5	7798	581.1	17705	677.6
1995	189867	867.1	8371	623.8	20011	765.8
1996	197436	901.7	8733	650.7	21051	805.6
1997	185390	846.6	8223	612.7	20546	786.3
1998	176530	806.2	7845	584.6	20031	766.6
1999	174372	796.3	7764	578.5	20709	792.5
2000	177973	812.8	7933	591.1	20625	789.3
2001	187940	858.3	8387	625.0	21948	840.0
2002	197728	903.0	9120	679.6	23740	908.5
2003	208584	952.6	9598	715.2	25124	961.5
2004	226026	1032.2	10429	777.1	27437	1050.0
2005	235458	1075.3	10889	811.4	28064	1074.0
2006	254501	1162.3	11791	878.6	30086	1151.4
2007	271943	1241.9	12627	940.9	31165	1192.7
2008	294901	1346.8	13714	1021.9	33715	1290.3
2009	274078	1251.7	12766	951.3	32586	1247.1
2010	271765	1241.1	12681	944.9	32582	1246.9

Source: Calculated based on the data from sections B, C, D and the number of inhabitants and employed population.

[1] The GDP per capita was kept with the previous base, reflecting faithfully the dynamic of the indicator regardless of the territorial changes that also proportionally modified the number of the population.
[2] The modalities of calculating the GDP, as shown in the introduction for the three consecutive periods: 1862-1947, 1950-1979 and 1980-2010 were different; the data of the connection and comparison years seem to be relatively normal, logical, which confirms the accuracy and suitability of the applied methods and techniques. Therefore in the first part of the series, 1862-1947 and in the second part 1950-2010, threshold, 1938 and 1950. The GDP per capita in 1950 was of 1342 USD, a value close to 1938 of 1147 USD. The difference additional to 1938 seems to be acceptable after an interval of 12 years and does not hamper the development and compatibility of the GDP series. The second moment of connection is between the periods 1950-1979 and 1980-2010, calculated based on different methods, when the border between 1979 and 1980 registers a minor difference of the GDP per capita: 1979 – 8957 USD, and the year - 8939 USD PPP 2000. Therefore, the entire series of the GDP 1862-2010 is continuous and comparable, of course with the reserves mentioned in the calculations made during the research.
[3] Calculated based on the synthesis tables of sections B2, C2, D2 and total population and employed population

Table A 3

Gross production by components - intermediary consumption, gross added value, fixed capital consumption, net added value - in USD PPP 2000 and structure, averages of the years, 1862-2010

Averages of years	Gross production		Intermediary consumption		Gross added value		Consumption of fixed capital		Net added value	
	million USD	shares	million USD	shares	million USD	shares	million USD	shares	million USD	shares
1	2	3	4	5	6	7	8	9	10	11
1862-1866	3675	100	1445	39.3	2230	60.7	74	2.0	2157	58.7
1867-1871	4121	100	1552	37.7	2569	62.3	82	2.0	2487	60.3
1872-1876	4634	100	1771	38.2	2863	61.8	99	2.1	2764	59.6
1877-1881	5369	100	1969	36.7	3400	63.3	114	2.1	3285	61.2
1882-1886	6349	100	2297	36.2	4051	63.8	126	2.0	3925	61.8
1887-1890	7165	100	2566	35.8	4599	64.2	148	2.1	4451	62.1
1891-1895	8395	100	3079	36.7	5316	63.3	183	2.2	5132	61.1
1896-1900	8658	100	3345	38.6	5313	61.4	215	2.5	5098	58.9
1901-1905	9595	100	3563	37.1	6032	62.9	256	2.7	5777	60.2
1906-1910	11517	100	4413	38.3	7104	61.7	319	2.8	6785	58.9
1911-1914	13777	100	5317	38.6	8460	61.4	463	3.4	7997	58.0
...										
1920-1924	23544	100	9868	41.9	13676	58.1	701	3.0	12975	55.1
1925-1929	31253	100	13597	43.5	17656	56.5	1042	3.3	16613	53.2
1930-1934	32548	100	13833	42.5	18715	57.5	1185	3.6	17529	53.9
1935-1939	38500	100	16810	43.7	21690	56.3	1568	4.1	20122	52.3
1940-1944	26491	100	12105	45.7	14386	54.3	1238	4.7	13149	49.6
1945-1947	19265	100	8816	45.8	10449	54.2	1131	5.9	9318	48.4
...										
1950-1954	45908	100	18941	41.3	26966	58.7	3244	7.1	23723	51.7
1955-1959	64945	100	28410	43.7	36535	56.3	4677	7.2	31858	49.1
1960-1964	103577	100	50870	49.1	52707	50.9	6893	6.7	45814	44.2
1965-1969	161961	100	81493	50.3	80467	49.7	10697	6.6	69770	43.1
1970-1974	256840	100	136255	53.1	120585	46.9	13319	5.2	107266	41.8
1975-1979	386470	100	212901	55.1	173568	44.9	16415	4.2	157153	40.7
1980-1984	518216	100	317265	61.2	200951	38.8	26028	5.0	174923	33.8
1985-1989	643523	100	425045	66.0	218478	34.0	34702	5.4	183776	28.6
1990-1994	442490	100	265572	60.0	176918	40.0	20034	4.5	156884	35.5
1995-2000	383522	100	213979	55.8	169544	44.2	20162	5.3	149382	39.0
2001-2005	408224	100	219826	53.8	188398	46.2	23051	5.6	165347	40.5
2006-2010	526271	100	282935	53.8	243336	46.2	29367	5.6	213969	40.7

Source: Calculated based on the data in table A 4

Note: Relationship of Gross Production: col 2 - col 4 = col. 6; col 6 – col 8 = col 10

Table A 4

Gross production by components - intermediary consumption, gross added value, fixed capital consumption, net added value in USD PPP 2000 and structure, annual series during the period 1862-2010

Years	Total gross production		Intermediary consumption		Gross added value		Consumption of fixed capital		Net added value	
	million USD	shares	million USD	shares	million USD	shares	million USD	shares	million USD	shares
1	2	3	4	5	6	7	8	9	10	11
1862	3770	100	1531	40.5	2239	59.5	70	1.9	2169	57.6
1863	3958	100	1508	37.9	2450	62.1	73	1.9	2377	60.2
1864	4128	100	1581	38.2	2547	61.8	74	1.8	2473	60.0
1865	3258	100	1297	39.7	1961	60.3	74	2.3	1887	58.0
1866	3261	100	1306	39.9	1955	60.1	77	2.4	1878	57.7
1867	3913	100	1525	38.8	2388	61.2	78	2.0	2310	59.2
1868	4302	100	1698	39.3	2604	60.7	82	2.0	2522	58.7
1869	4051	100	1485	41.0	2566	59.0	80	2.0	2486	57.0
1870	4106	100	1423	39.0	2683	61.0	84	2.0	2599	59.0
1871	4235	100	1631	38.4	2604	61.6	85	2.0	2519	59.6
1872	4350	100	1759	40.3	2591	59.7	90	2.1	2501	57.6
1873	4426	100	1666	37.5	2760	62.5	95	2.2	2665	60.3
1874	4436	100	1717	38.6	2719	61.4	101	2.3	2618	59.1
1875	5121	100	1948	37.9	3173	62.1	106	2.0	3067	60.1
1876	4835	100	1765	36.4	3070	63.6	102	2.1	2968	61.5
1877	4921	100	1767	35.8	3154	64.2	108	2.2	3046	62.0
1878	5068	100	1827	35.9	3241	64.1	108	2.1	3133	62.0
1879	5261	100	1933	36.6	3328	63.4	116	2.2	3212	61.2
1880	6505	100	2342	35.9	4163	64.1	119	1.8	4044	62.3
1881	5089	100	1977	38.7	3112	61.3	120	2.3	2992	59.0
1882	6462	100	2280	35.2	4182	64.8	121	1.8	4061	63.0
1883	6243	100	2347	37.4	3896	62.6	128	2.0	3768	60.5
1884	5395	100	2023	37.4	3372	62.6	123	2.3	3249	60.3
1885	6431	100	2291	35.5	4140	64.5	126	1.9	4014	62.6
1886	7212	100	2546	35.2	4666	64.8	133	1.8	4533	63.0
1887	6991	100	2616	37.3	4375	62.7	138	2.0	4237	60.7
1888	7144	100	2541	35.4	4603	64.6	142	2.0	4461	62.6
1889	7153	100	2476	34.5	4677	65.5	153	2.1	4524	63.4
1890	7371	100	2631	35.6	4740	64.4	158	2.1	4582	62.3
1891	7823	100	2931	37.3	4892	62.7	174	2.2	4718	60.5
1892	8427	100	3106	36.7	5321	63.3	179	2.2	5142	61.1
1893	8097	100	2965	36.5	5132	63.5	181	2.2	4951	61.3
1894	8662	100	3069	35.3	5593	64.7	188	2.2	5405	62.5
1895	8965	100	3325	36.9	5640	63.1	195	2.2	5445	60.9
1896	9396	100	3555	37.7	5841	62.3	204	2.1	5637	60.2
1897	7872	100	3073	37.9	4799	62.1	199	2.5	4600	59.6
1898	9375	100	3484	37.0	5891	63.0	214	2.3	5677	60.7
1899	7277	100	3112	42.7	4165	57.3	211	2.9	3954	54.4
1900	9372	100	3503	37.2	5869	62.8	245	2.7	5624	60.1
1901	9548	100	3400	35.5	6148	64.5	243	2.5	5905	62.0

Years	Total gross production		Intermediary consumption		Gross added value		Consumption of fixed capital		Net added value	
	million USD	shares	million USD	shares	million USD	shares	million USD	shares	million USD	shares
1	2	3	4	5	6	7	8	9	10	11
1902	9499	100	3493	36.6	6006	63.4	252	2.7	5754	60.7
1903	9989	100	3729	37.2	6260	62.8	265	2.7	5995	60.1
1904	8106	100	3242	39.9	4864	60.1	251	3.0	4613	57.1
1905	10835	100	3952	36.3	6883	63.7	267	2.5	6616	61.2
1906	11906	100	4385	36.7	7521	63.3	290	2.4	7231	60.9
1907	10058	100	3996	39.6	6062	60.4	297	3.0	5765	57.4
1908	10956	100	4284	39.0	6672	61.0	317	2.8	6355	58.2
1909	10962	100	4308	39.2	6654	60.8	333	3.0	6321	57.8
1910	13705	100	5094	37.0	8611	63.0	357	2.7	8254	60.3
1911	13628	100	5071	37.1	8557	62.9	426	3.1	8131	59.8
1912	13948	100	5248	37.5	8700	62.5	456	3.3	8244	59.2
1913	14404	100	5599	38.7	8805	61.3	486	3.4	8319	57.9
1914	13127	100	5351	40.6	7776	59.4	483	3.7	7293	55.7
...										
1920	19376	100	8073	41.5	11303	58.5	558	2.9	10745	55.6
1921	21584	100	9145	42.3	12439	57.7	635	2.9	11804	54.8
1922	24025	100	10148	42.1	13877	57.9	707	3	13170	54.9
1923	26129	100	10788	41.2	15341	58.8	764	2.9	14577	55.9
1924	26607	100	11185	41.9	15422	58.1	841	3.2	14581	54.9
1925	28175	100	12218	43.2	15957	56.8	893	3.2	15064	53.6
1926	31012	100	13360	42.9	17652	57.1	979	3.2	16673	53.9
1927	31552	100	13557	43.6	17995	56.4	1041	3.3	16954	53.1
1928	31902	100	14206	44.4	17696	55.6	1127	3.5	16569	52.1
1929	33622	100	14643	43.4	18979	56.6	1172	3.5	17807	53.1
1930	32973	100	13855	41.9	19118	58.1	1190	3.6	17928	54.5
1931	33081	100	13473	40.6	19608	59.4	1168	3.5	18440	55.9
1932	30864	100	13048	42.2	17816	57.8	1141	3.6	16675	54.2
1933	32184	100	13931	43.2	18253	56.8	1171	3.6	17082	53.2
1934	33638	100	14859	43.8	18779	56.2	1257	4.0	17522	52.2
1935	36287	100	15831	43.5	20456	56.5	1393	3.8	19063	52.7
1936	37611	100	16381	43.4	21230	56.6	1558	4.2	19672	52.4
1937	39669	100	17368	43.7	22301	56.3	1647	4.1	20654	52.2
1938	39161	100	17202	43.8	21959	56.2	1635	4.2	20324	52.0
1939	39772	100	17266	43.3	22506	56.7	1607	4.0	20899	52.7
1940	26703	100	12201	45.6	14502	54.4	1286	4.8	13216	49.6
1941	27449	100	12507	45.4	14942	54.6	1246	4.6	13696	50.0
1942	26444	100	12399	46.8	14045	53.2	1292	4.9	12753	48.3
1943	29489	100	13420	45.4	16069	54.6	1342	4.5	14727	50.1
1944	22370	100	9997	44.6	12373	55.4	1022	4.5	11351	50.9
1945	18403	100	8774	47.6	9629	52.4	1065	5.7	8564	46.7
1946	17665	100	8155	46.1	9510	53.9	1133	6.4	8377	47.5
1947	21726	100	9518	43.7	12208	56.3	1195	5.5	11013	50.8
...										
1950	35704	100	14185	42.6	21519	57.4	2536	7.1	18983	50.3
1951	43399	100	16480	40.5	26919	59.5	3111	7.1	23808	52.4
1952	44726	100	18326	43.0	26400	57.0	3338	7.5	23062	49.5
1953	52614	100	22908	44.8	29706	55.2	3535	6.7	26171	48.5
1954	53095	100	22808	44.6	30287	55.4	3698	7.0	26589	48.4

Year	Total gross production		Intermediary consumption		Gross added value		Consumption of fixed capital		Net added value	
	million USD	shares	million USD	shares	million USD	shares	million USD	shares	million USD	shares
1	2	3	4	5	6	7	8	9	10	11
1955	54476	100	18693	36.9	35783	63.1	4019	7.4	31764	55.7
1956	56567	100	25323	46.4	31244	53.6	4530	8.0	26714	45.6
1957	68627	100	31064	46.9	37563	53.1	4900	7.1	32663	46.0
1958	67575	100	31364	48.0	36211	52.0	4967	7.4	31244	44.6
1959	77480	100	35608	48.1	41872	51.9	4967	6.4	36905	45.5
1960	87510	100	41783	49.4	45727	50.6	5719	6.5	40008	44.1
1961	96110	100	46556	49.9	49554	50.1	6238	6.5	43316	43.6
1962	100682	100	49324	50.7	51358	49.3	6947	6.9	44411	42.4
1963	110633	100	54979	50.9	55654	49.1	7539	6.8	48115	42.3
1964	122951	100	61710	51.4	61241	48.6	8022	6.5	53219	42.1
1965	133477	100	67002	51.4	66475	48.6	8774	6.6	57701	42.0
1966	148023	100	74091	51.9	73932	48.1	9600	6.5	64332	41.6
1967	162438	100	81428	52.5	81010	47.5	10972	6.8	70038	40.7
1968	174469	100	87213	52.7	87256	47.3	11713	6.7	75543	40.6
1969	191397	100	97733	53.1	93664	46.9	12426	6.5	81238	40.4
1970	213197	100	111016	53.9	102181	46.1	12726	6.0	89455	40.1
1971	228089	100	118700	54.1	109389	45.9	11915	5.2	97474	40.7
1972	255998	100	135582	54.8	120416	45.2	13092	5.1	107324	40.1
1973	283634	100	151547	55.2	132087	44.8	14066	5.0	118021	39.8
1974	303281	100	164430	55.9	138851	44.1	14794	4.9	124057	39.2
1975	314305	100	170787	56.0	143518	44.0	14997	4.8	128521	39.2
1976	353291	100	192233	56.0	161058	44.0	15693	4.4	145365	39.6
1977	384605	100	208677	56.5	175928	43.5	16477	4.3	159451	39.2
1978	425284	100	232590	57.1	192694	42.9	17105	4.0	175589	38.9
1979	454863	100	260219	57.7	194644	42.3	17804	3.9	176840	38.4
1980	465780	100	270619	58.1	195161	41.9	20687	4.4	174474	37.5
1981	485968	100	292849	59.2	193119	40.8	24586	5.1	168533	35.7
1982	519681	100	325746	60.3	193935	39.7	24964	4.8	168971	34.9
1983	531200	100	326133	58.8	205067	41.2	29764	5.6	175303	35.6
1984	588450	100	370976	60.6	217474	39.4	30140	5.1	187334	34.3
1985	627742	100	411393	63.1	216349	36.9	31503	5.0	184846	31.9
1986	643364	100	423426	63.2	219938	36.8	29863	4.6	190075	32.2
1987	671392	100	445762	64.4	225630	35.6	34418	5.1	191212	30.5
1988	666406	100	441346	64.3	225060	35.7	38303	5.7	186757	30.0
1989	608712	100	403298	63.2	205414	36.8	39425	6.5	165989	30.3
1990	528369	100	329174	62.3	199195	37.7	23260	4.4	175935	33.3
1991	471300	100	294563	62.5	176737	37.5	20251	4.3	156486	33.2
1992	452353	100	280007	61.9	172346	38.1	18459	4.1	153887	34.0
1993	386390	100	221015	57.2	165375	42.8	18735	4.8	146640	38.0
1994	374037	100	203100	54.3	170937	45.7	19465	5.2	151472	40.5
1995	407277	100	226446	55.6	180831	44.4	20851	5.1	159980	39.3
1996	445470	100	257036	57.7	188434	42.3	21682	4.9	166752	37.4
1997	395807	100	224422	56.7	171385	43.3	20358	5.1	151027	38.2
1998	364804	100	203196	55.7	161608	44.3	19386	5.3	142222	39.0
1999	343551	100	187923	54.7	155628	45.3	19149	5.6	136479	39.7
2000	344223	100	184848	53.7	159375	46.3	19544	5.7	139831	40.6

Year	Total gross production		Intermediary consumption		Gross added value		Consumption of fixed capital		Net added value	
	million USD	shares	million USD	shares	million USD	shares	million USD	shares	million USD	shares
1	2	3	4	5	6	7	8	9	10	11
2001	364604	100	195459	53.6	169146	46.4	20418	5.6	148728	40.8
2002	384581	100	206626	53.7	177955	46.3	21152	5.5	156803	40.8
2003	403402	100	217762	54.0	185640	46.0	22591	5.6	163049	40.4
2004	442107	100	240766	54.3	201341	45.7	25200	5.9	176141	39.8
2005	446428	100	238518	53.4	207910	46.6	25893	5.8	182017	40.8
2006	484823	100	260098	53.7	224725	46.3	27150	5.5	197575	40.8
2007	512613	100	271944	53.0	240669	47.0	27681	5.5	212988	41.5
2008	564906	100	302145	53.5	262761	46.5	31070	5.5	231691	41.0
2009	534452	100	287778	53.8	246674	46.2	30998	5.8	215676	40.4
2010	534562	100	292711	54.7	241851	45.3	29935	5.7	211916	39.6

Source: Calculated based on the data contained by the synthesis tables of sections B, C, D.

Note: Relationship of Gross Production: col 2 - col 4 = col. 6: col 6 - col 8 = col 10

Table A 5

Gross added value in the production of goods and services, in USD PPP 2000, indexes and structure, averages of the years, 1862-2010

Averages of years	Total gross added value			In the production of goods			In the production of services		
	million USD	indexes	shares	millio n USD	index es	shares	million USD	indexes	shares
1	2	3	4	5	6	7	8	9	10
1862-1866	2230	100	100	1592	100	71.4	638	100	28.6
1867-1871	2569	115.2	100	1877	117.9	75.3	692	108.5	24.7
1872-1876	2863	128.4	100	2101	132.0	73.3	762	119.4	26.7
1877-1881	3400	152.5	100	2388	150.0	69.9	1012	158.6	30.1
1882-1886	4051	181.7	100	2840	178.4	69.9	1211	189.8	30.1
1887-1890	4599	206.2	100	3254	204.4	70.8	1345	210.8	29.2
1891-1895	5316	238.4	100	3671	230.6	69.0	1645	257.8	31.0
1896-1900	5313	238.3	100	3571	224.3	66.6	1742	273.0	33.4
1901-1905	6032	270.5	100	4042	253.9	66.8	1990	311.9	33.2
1906-1910	7104	318.6	100	4635	291.1	65.0	2469	387.0	35.0
1911-1914	8460	379.4	100	5383	338.1	63.6	3077	482.3	36.4
....									
1920-1924	13676	100	100	8682	100	63.5	4994	100	36.5
1925-1929	17656	129.1	100	11140	128.3	63.3	6516	130.5	36.7
1930-1934	18715	136.8	100	11819	136.1	63.2	6896	138.1	36.8
1935-1939	21690	158.6	100	13991	161.1	64.5	7699	154.2	35.5
1940-1944	14386	105.2	100	9085	104.6	63.3	5301	106.1	36.7
1945-1947*	10449	76.4	100	7371	84.9	70.3	3078	61.6	29.7
....									
1950-1954	26966	100	100	19610	100	72.6	7376	100	27.4
1955-1959	36535	135.5	100	26686	136.1	72.9	9849	133.5	27.1
1960-1964	52707	195.5	100	39322	200.5	74.6	13385	181.5	25.4
1965-1969	80467	298.4	100	60427	308.1	75.0	20040	271.7	25.0
1970-1974	120585	447.2	100	92571	472.1	76.7	28014	379.8	23.3
1975-1979	173568	643.7	100	132481	675.6	75.3	43087	584.2	24.7
1980-1984	200951	745.2	100	144399	736.4	71.8	56552	766.7	28.2
1985-1989	218478	810.2	100	157690	804.1	72.2	60788	824.1	27.8
1990-1994	176918	656.1	100	112637	574.4	63.4	64281	871.5	36.6
1995-2000	169544	628.7	100	93400	476.3	54.7	76144	1032.3	45.3
2001-2005	188398	698.7	100	91574	467.0	48.6	96825	1312.7	51.4
2006-2010	243336	902.4	100	112583	574.1	46.3	130753	1772.7	53.7

Source: Calculated based on the data in Table A6

Note: * Base = 100 in the period 1950-1954

Table A 6

Gross added value in the production of goods and services, in USD PPP 2000 and structure, annual series, during the period 1862-2010

Years	Total gross added value		In the production of goods		In the production of services	
	million USD	shares	million USD	shares	million USD	shares
1	2	3	4	5	6	7
1862	2239	100	1632	72.9	607	27.1
1863	2450	100	1818	74.2	632	25.8
1864	2547	100	1850	72.6	697	27.4
1865	1961	100	1324	67.5	637	32.5
1866	1955	100	1334	68.2	621	31.8
1867	2388	100	1773	74.2	615	25.8
1868	2604	100	1881	72.2	723	27.8
1869	2566	100	1871	72.9	695	27.1
1870	2683	100	1976	73.6	707	26.4
1871	2604	100	1886	72.4	718	27.6
1872	2591	100	1870	72.2	721	27.8
1873	2760	100	2021	73.2	739	26.8
1874	2719	100	1983	72.9	736	27.1
1875	3173	100	2419	76.2	754	23.8
1876	3070	100	2210	72.0	860	28.0
1877	3154	100	2187	69.3	967	30.7
1878	3241	100	2217	68.4	1024	31.6
1879	3328	100	2338	70.3	990	29.7
1880	4163	100	3131	75.2	1032	24.8
1881	3112	100	2067	66.4	1045	33.6
1882	4182	100	3058	73.1	1124	26.9
1883	3896	100	2683	68.9	1213	31.1
1884	3372	100	2225	66.0	1147	34.0
1885	4140	100	2880	69.6	1260	30.4
1886	4666	100	3356	71.9	1310	28.1
1887	4375	100	3036	69.4	1339	30.6
1888	4603	100	3332	72.4	1271	27.6
1889	4677	100	3328	71.2	1349	28.8
1890	4740	100	3320	70.0	1420	30.0
1891	4892	100	3315	67.8	1577	32.2
1892	5321	100	3744	70.4	1577	29.6
1893	5132	100	3437	67.0	1695	33.0
1894	5593	100	3888	69.5	1705	30.5
1895	5640	100	3972	70.4	1668	29.6
1896	5841	100	4052	69.4	1789	30.6
1897	4799	100	3155	65.7	1644	34.3
1898	5891	100	4018	68.2	1873	31.8
1899	4165	100	2535	60.9	1630	39.1
1900	5869	100	4096	69.8	1773	30.2
1901	6148	100	4225	68.7	1923	31.3

Years	Total gross added value		In the production of goods		In the production of services	
	million USD	shares	million USD	shares	million USD	shares
1	**2**	**3**	**4**	**5**	**6**	**7**
1902	6006	100	4055	67.5	1951	32.5
1903	6260	100	4277	68.3	1983	31.7
1904	4864	100	3010	61.9	1854	38.1
1905	6883	100	4645	67.5	2238	32.5
1906	7521	100	5135	68.3	2386	31.7
1907	6062	100	3772	62.2	2290	37.8
1908	6672	100	4317	64.7	2355	35.3
1909	6654	100	4181	62.8	2473	37.2
1910	8611	100	5771	67.0	2840	33.0
1911	8557	100	5468	63.9	3089	36.1
1912	8700	100	5562	63.9	3138	36.1
1913	8805	100	5672	64.4	3133	35.6
1914	7776	100	4831	62.1	2945	37.9
…						
1920	11303	100	7314	64.7	3989	35.3
1921	12439	100	7634	61.4	4805	38.6
1922	13877	100	8978	64.7	4899	35.3
1923	15341	100	9863	64.3	5478	35.7
1924	15422	100	9620	62.4	5802	37.6
1925	15957	100	10311	64.6	5646	35.4
1926	17652	100	11278	63.9	6374	36.1
1927	17995	100	10956	60.9	7039	39.1
1928	17696	100	11039	62.4	6657	37.6
1929	18979	100	12116	63.8	6863	36.2
1930	19118	100	11859	62.0	7259	38.0
1931	19608	100	12250	62.5	7358	37.5
1932	17816	100	11186	62.8	6630	37.2
1933	18253	100	11812	64.7	6441	35.3
1934	18779	100	11988	63.8	6791	36.2
1935	20456	100	13119	64.1	7337	35.9
1936	21230	100	13594	64.0	7636	36.0
1937	22301	100	14264	64.0	8037	36.0
1938	21959	100	14280	65.0	7679	35.0
1939	22506	100	14699	65.3	7807	34.7
1940	14502	100	9147	63.1	5355	36.9
1941	14942	100	9231	61.8	5711	38.2
1942	14045	100	8389	59.7	5656	40.3
1943	16069	100	10237	63.7	5832	36.3
1944	12373	100	8420	68.1	3953	31.9
1945	9629	100	6685	69.4	2944	30.6
1946	9510	100	6534	68.7	2976	31.3
1947	12208	100	8894	72.9	3314	27.1
…						
1950	21519	100	15608	72.5	5911	27.5
1951	26919	100	19457	72.3	7462	27.7
1952	26400	100	19136	72.5	7264	27.5
1953	29706	100	21867	73.6	7839	26.4
1954	30287	100	21980	72.6	8307	27.4

Years	Total gross added value		In the production of goods		In the production of services	
	million USD	shares	million USD	shares	million USD	shares
1	2	3	4	5	6	7
1955	35783	100	26362	73.7	9421	26.3
1956	31243	100	22093	70.7	9150	29.3
1957	37564	100	27469	73.1	10095	26.9
1958	36211	100	26323	72.7	9888	27.3
1959	41873	100	31184	74.5	10689	25.5
1960	45727	100	34363	75.1	11364	24.9
1961	49553	100	37186	75.0	12367	25.0
1962	51358	100	38367	74.7	12991	25.3
1963	55654	100	41345	74.3	14309	25.7
1964	61241	100	45349	74.1	15892	25.9
1965	66475	100	49406	74.3	17069	25.7
1966	73932	100	55450	75.0	18482	25.0
1967	81010	100	60622	74.8	20388	25.2
1968	87256	100	65660	75.2	21596	24.8
1969	93664	100	70998	75.8	22666	24.2
1970	102181	100	77934	76.3	24247	23.7
1971	109389	100	83507	76.3	25882	23.7
1972	120416	100	92848	77.1	27568	22.9
1973	132087	100	102318	77.5	29769	22.5
1974	138851	100	106247	76.5	32604	23.5
1975	143518	100	108985	75.9	34533	24.1
1976	161058	100	122714	76.2	38344	23.8
1977	175928	100	132880	75.5	43048	24.5
1978	192693	100	144283	74.9	48410	25.1
1979	194644	100	153543	73.7	51101	26.3
1980	195161	100	139882	71.7	55279	28.3
1981	193119	100	135818	70.3	57301	29.7
1982	193935	100	140912	72.7	53023	27.3
1983	205067	100	147727	72.0	57340	28.0
1984	217474	100	157657	72.5	59817	27.5
1985	216349	100	156586	72.4	59763	27.6
1986	219938	100	160925	73.2	59013	26.8
1987	225630	100	161096	71.4	64534	28.6
1988	225060	100	161777	71.9	63283	28.1
1989	205414	100	148068	72.1	57346	27.9
1990	199195	100	143158	71.9	56037	28.1
1991	176737	100	112670	63.8	64067	36.2
1992	172346	100	104213	60.5	68133	39.5
1993	165375	100	99804	60.3	65571	39.7
1994	170937	100	103341	60.5	67596	39.5
1995	180831	100	112403	62.2	68428	37.8
1996	188434	100	116096	61.6	72338	38.4
1997	171385	100	100129	58.4	71256	41.6
1998	161608	100	83360	51.6	78248	48.4
1999	155628	100	75029	48.2	80599	51.8
2000	159375	100	73380	46.0	85995	54.0

Years	Total gross added value		In the production of goods		In the production of services	
	million USD	shares	million USD	shares	million USD	shares
1	2	3	4	5	6	7
2001	169146	100	83552	49.4	85594	50.6
2002	177955	100	85942	48.3	92013	51.7
2003	185660	100	90370	48.7	95290	51.3
2004	201341	100	100076	49.7	101265	50.3
2005	207910	100	97929	47.1	109981	52.9
2006	224725	100	106377	47.3	118348	52.7
2007	240669	100	104413	43.4	136257	56.6
2008	262757	100	120514	45.9	142243	54.1
2009	246671	100	113527	46.0	133144	54.0
2010	241851	100	118084	48.8	123767	51.2

Source: Calculated based on the data in Tables A 10 and A 16

Table A 7

Gross added value in the production of goods and services, in USD PPP 2000 , *per capita and structure*, averages of the years, during the period 1862-2010

Averages of years	Gross added value		In the production of goods		In the production of services	
	USD	shares	USD	shares	USD	shares
1	2	3	4	5	6	7
1862-1866	547	100.0	390	71.3	157	28.7
1867-1871	605	100.0	442	73.1	163	26.9
1872-1876	653	100.0	479	73.4	174	26.6
1877-1881	750	100.0	527	70.3	223	29.7
1882-1886	832	100.0	583	70.1	249	29.9
1887-1890	881	100.0	624	70.8	257	29.2
1891-1895	967	100.0	668	69.1	299	30.9
1896-1900	908	100.0	609	67.1	299	32.9
1901-1905	956	100.0	641	67.1	315	32.9
1906-1910	1048	100.0	684	65.3	364	34.7
1911-1914	1152	100.0	733	63.6	419	36.4
....						
1920-1924	862	100.0	547	63.5	315	36.5
1925-1929	1037	100.0	654	63.1	383	36.9
1930-1934	1017	100.0	642	63.1	375	36.9
1935-1939	1111	100.0	716	64.4	395	35.6
1940-1944	1066	100.0	673	63.1	393	36.9
1945-1947	661	100.0	466	70.5	195	29.5
....						
1950-1954	1617	100.0	1175	72.7	442	27.3
1955-1959	2052	100.0	1499	73.1	553	26.9
1960-1964	2820	100.0	2104	74.6	716	25.4
1965-1969	4133	100.0	3103	75.1	1030	24.9
1970-1974	5832	100.0	4477	76.8	1355	23.2
1975-1979	8007	100.0	6020	75.2	1987	24.8
1980-1984	8953	100.0	6433	71.9	2520	28.1
1985-1989	9526	100.0	6876	72.2	2650	27.8
1990-1994	7711	100.0	4907	63.6	2804	36.4
1995-2000	7521	100.0	4141	55.1	3380	44.9
2001-2005	8635	100.0	4196	48.6	4439	51.4
2006-2010	11314	100.0	5235	46.3	6079	53.7

Sources: Calculated based on the data in table A 8

Table A 8

Gross added value in the production of goods and services, in USD PPP 2000, *per capita and structure*, annual series, during the period 1862-2010

Years	Total added value per capita		In the production of goods		In the production of services	
	USD	shares	USD	shares	USD	shares
1	2	3	4	5	6	7
1862	557	100	406	72.9	151	27.1
1863	606	100	450	74.3	156	25.7
1864	622	100	452	72.7	170	27.3
1865	474	100	320	67.5	154	32.5
1866	475	100	324	68.2	151	31.8
1867	575	100	427	74.3	148	25.7
1868	620	100	448	72.3	172	27.7
1869	604	100	440	72.8	164	27.2
1870	625	100	460	73.6	165	26.4
1871	601	100	435	72.4	166	27.6
1872	596	100	430	72.1	166	27.9
1873	633	100	464	73.3	169	26.7
1874	623	100	455	73.0	168	27.0
1875	721	100	550	76.3	171	23.7
1876	690	100	497	72.0	193	28.0
1877	704	100	488	69.3	216	30.7
1878	723	100	494	68.3	229	31.7
1879	735	100	516	70.2	219	29.8
1880	916	100	689	75.2	227	24.8
1881	673	100	447	66.4	226	33.6
1882	892	100	652	73.1	240	26.9
1883	816	100	562	68.9	254	31.1
1884	693	100	458	66.1	235	33.9
1885	835	100	581	69.6	254	30.4
1886	925	100	665	71.9	260	28.1
1887	856	100	594	69.4	262	30.6
1888	889	100	644	72.4	245	27.6
1889	890	100	633	71.1	257	28.9
1890	891	100	624	70.0	267	30.0
1891	907	100	615	67.8	292	32.2
1892	981	100	690	70.3	291	29.7
1893	936	100	627	67.0	309	33.0
1894	1009	100	701	69.5	308	30.5
1895	1001	100	705	70.4	296	29.6
1896	1023	100	710	69.4	313	30.6
1897	842	100	544	64.6	298	35.4
1898	1005	100	685	68.2	320	31.8
1899	699	100	425	60.8	274	39.2
1900	971	100	678	69.8	293	30.2
1901	1003	100	690	68.8	313	31.2

Years	Total added value per capita		In the production of goods		In the production of services	
	USD	shares	USD	shares	USD	shares
1	2	3	4	5	6	7
1902	970	100	655	67.5	315	32.5
1903	995	100	680	68.3	315	31.7
1904	750	100	464	61.9	286	38.1
1905	1062	100	717	67.5	345	32.5
1906	1142	100	780	68.3	362	31.7
1907	907	100	564	62.2	343	37.8
1908	986	100	638	64.7	348	35.3
1909	969	100	609	62.8	360	37.2
1910	1236	100	828	67.0	408	33.0
1911	1207	100	772	64.0	435	36.0
1912	1203	100	769	63.9	434	36.1
1913	1197	100	771	64.4	426	35.6
1914	1000	100	622	62.2	378	37.8
...						
1920	734	100	475	64.7	259	35.3
1921	798	100	490	61.4	308	38.6
1922	876	100	567	64.7	309	35.3
1923	955	100	614	64.3	341	35.7
1924	946	100	590	62.4	356	37.6
1925	964	100	623	64.6	341	35.4
1926	1052	100	672	63.9	380	36.1
1927	1058	100	644	60.9	414	39.1
1928	1026	100	640	62.4	386	37.6
1929	1085	100	693	63.9	392	36.1
1930	1068	100	662	62.0	406	38.0
1931	1079	100	674	62.5	405	37.5
1932	967	100	607	62.8	360	37.2
1933	979	100	633	64.7	346	35.3
1934	993	100	634	63.8	359	36.2
1935	1072	100	687	64.1	385	35.9
1936	1099	100	704	64.1	395	35.9
1937	1142	100	730	63.9	412	36.1
1938	1112	100	723	65.0	389	35.0
1939	1129	100	737	65.3	392	34.7
1940	1091	100	688	63.1	403	36.9
1941	1120	100	692	61.8	428	38.2
1942	1041	100	622	59.8	419	40.2
1943	1177	100	750	63.7	427	36.3
1944	903	100	615	68.1	288	31.9
1945	612	100	425	69.4	187	30.6
1946	602	100	414	68.8	188	31.2
1947	768	100	560	72.9	208	27.1
...						
1950	1319	100	957	72.6	362	27.4
1951	1635	100	1182	72.3	453	27.7
1952	1587	100	1151	72.5	436	27.5
1953	1763	100	1298	73.6	465	26.4
1954	1774	100	1288	72.6	486	27.4

Years	Total added value per capita		In the production of goods		In the production of services	
	USD	shares	USD	shares	USD	shares
1	2	3	4	5	6	7
1955	2065	100	1522	73.7	543	26.3
1956	1786	100	1263	70.7	523	29.3
1957	2107	100	1541	73.1	567	26.9
1958	2005	100	1458	72.7	549	27.4
1959	2297	100	1711	74.5	586	25.5
1960	2485	100	1867	75.1	618	24.9
1961	2669	100	2003	75.0	666	25.0
1962	2749	100	2054	74.7	695	25.3
1963	2958	100	2198	74.3	760	25.7
1964	3236	100	2396	74.0	840	26.0
1965	3494	100	2597	74.3	897	25.7
1966	3862	100	2897	75.0	965	25.0
1967	4201	100	3143	74.8	1058	25.2
1968	4425	100	3329	75.2	1096	24.8
1969	4681	100	3548	75.8	1133	24.2
1970	5045	100	3848	76.3	1197	23.7
1971	5344	100	4079	76.3	1265	23.7
1972	5828	100	4493	77.1	1335	22.9
1973	6342	100	4913	77.5	1429	22.5
1974	6603	100	5052	76.5	1551	23.5
1975	6755	100	5130	75.9	1625	24.1
1976	7510	100	5722	76.2	1788	23.8
1977	8123	100	6135	75.5	1988	24.5
1978	8817	100	6602	74.9	2215	25.1
1979	8828	100	6510	73.7	2318	26.3
1980	8791	100	6301	71.7	2490	28.3
1981	8640	100	6076	70.3	2564	29.7
1982	8628	100	6269	72.7	2359	27.3
1983	9093	100	6550	72.0	2543	28.0
1984	9613	100	6969	72.5	2644	27.5
1985	9521	100	6891	72.4	2630	27.6
1986	9637	100	7051	73.2	2586	26.8
1987	9836	100	7022	71.4	2814	28.6
1988	9763	100	7018	71.9	2745	28.1
1989	8873	100	6396	72.1	2477	27.9
1990	8583	100	6169	71.9	2414	28.1
1991	7623	100	4860	63.8	2763	36.2
1992	7563	100	4573	60.5	2990	39.5
1993	7268	100	4386	60.3	2882	39.7
1994	7520	100	4546	60.5	2974	39.5
1995	7973	100	4956	62.2	3017	37.8
1996	8335	100	5135	61.6	3200	38.4
1997	7602	100	4441	58.4	3161	41.6
1998	7182	100	3704	51.6	3478	48.4
1999	6930	100	3341	48.2	3589	51.8
2000	7104	100	3271	46.0	3833	54.0

Years	Total added value per capita		In the production of goods		In the production of services	
	USD	shares	USD	shares	USD	shares
1	2	3	4	5	6	7
2001	7548	100	3729	49.4	3820	50.6
2002	8208	100	3964	48.3	4244	51.7
2003	8543	100	4158	48.7	4384	51.3
2004	9290	100	4618	49.7	4672	50.3
2005	9615	100	4529	47.1	5086	52.9
2006	10412	100	4929	47.3	5483	52.7
2007	11175	100	4848	43.4	6327	56.6
2008	12219	100	5604	45.9	6615	54.1
2009	11490	100	5288	46.0	6202	54.0
2010	11285	100	5510	48.8	5775	51.2

Source: Calculated based on the data in Table A 5 and the population of the country.

Table A 9

Gross added value in the *production of goods*, by branches - resources in USD PPP 2000, and structure, averages of the years, period 1862-2010

Averages of years	Total production of goods		Agriculture		Industry		Constructions	
	million USD	shares	million USD	shares	million USD	shares	million USD	shares
1	2	3	4	5	6	7	8	9
1862-1866	1592	100	1190	74.7	355	22.3	47	3.0
1867-1871	1877	100	1425	75.9	371	19.8	81	4.3
1872-1876	2101	100	1520	72.3	461	21.9	120	5.7
1877-1881	2388	100	1732	72.5	553	23.2	103	4.3
1882-1886	2840	100	2062	72.6	612	21.5	166	5.8
1887-1890	3254	100	2258	69.4	754	23.2	242	7.4
1891-1895	3671	100	2514	68.5	936	25.5	221	6.0
1896-1900	3571	100	2272	63.6	1014	28.4	285	8.0
1901-1905	4042	100	2730	67.5	1046	25.9	266	6.6
1906-1910	4635	100	2751	59.4	1487	32.1	397	8.6
1911-1914	5383	100	3024	56.2	1895	35.2	464	8.6
1920-1924	8682	100	5442	62.7	2379	27.4	861	9.9
1925-1929	11140	100	6361	57.1	3595	32.3	1184	10.6
1930-1934	11819	100	6686	56.6	3956	33.5	1177	10.0
1935-1939	13991	100	7376	52.7	5113	36.5	1502	10.7
1940-1944	9085	100	4044	44.5	3939	43.4	1102	12.1
1945-1947	7371	100	2950	40.0	3439	46.7	982	13.3
1950-1954	19610	100	9762	49.8	8618	43.9	1230	6.3
1955-1959	26686	100	11880	44.5	12547	47.0	2259	8.5
1960-1964	39322	100	13831	35.2	21642	55.0	3849	9.8
1965-1969	60427	100	16657	27.6	37881	62.7	5889	9.7
1970-1974	92571	100	18726	20.2	64346	69.5	9499	10.3
1975-1979	132481	100	23612	17.8	94748	71.5	14121	10.7
1980-1984	144399	100	32316	22.4	98166	68.0	13917	9.6
1985-1989	157690	100	33105	21.0	109355	69.3	15230	9.7
1990-1994	112637	100	36822	32.7	66405	59.0	9410	8.4
1995-2000	93400	100	29520	31.6	53655	57.4	10225	10.9
2001-2005	91574	100	25733	28.1	54207	59.2	11634	12.7
2006-2010	112583	100	22783	20.2	66578	59.1	23222	20.6

Source: Calculated based on the data in Table A 10

Table A 10

Gross added value in the *production of goods*, by branches in USD PPP 2000 and structure, annual series, period 1862-2010

Years	Total production of goods		Agriculture		Industry		Constructions	
	million USD	shares	million USD	shares	million USD	shares	million USD	shares
1	2	3	4	5	6	7	8	9
1862	1635	100	1223	74.8	369	22.6	43	2.6
1863	1819	100	1449	79.7	327	18.0	43	2.4
1864	1849	100	1485	80.3	317	17.1	47	2.5
1865	1323	100	922	69.7	351	26.5	50	3.8
1866	1335	100	872	65.3	411	30.8	52	3.9
1867	1771	100	1360	76.8	359	20.3	52	2.9
1868	1880	100	1417	75.4	409	21.8	54	2.9
1869	1871	100	1383	73.9	359	19.2	129	6.9
1870	1976	100	1506	76.2	382	19.3	88	4.5
1871	1886	100	1459	77.4	348	18.5	79	4.2
1872	1871	100	1305	69.7	427	22.8	139	7.4
1873	2020	100	1464	72.5	419	20.7	137	6.8
1874	1981	100	1388	70.1	516	26.0	77	3.9
1875	2421	100	1774	73.3	498	20.6	149	6.2
1876	2210	100	1669	75.5	443	20.0	98	4.4
1877	2187	100	1598	73.1	490	22.4	99	4.5
1878	2218	100	1650	74.4	461	20.8	107	4.8
1879	2339	100	1640	70.1	605	25.9	94	4.0
1880	3129	100	2410	77.0	616	19.7	103	3.3
1881	2068	100	1360	65.8	592	28.6	116	5.6
1882	3056	100	2373	77.7	537	17.6	146	4.8
1883	2682	100	1873	69.8	647	24.1	162	6.0
1884	2224	100	1483	66.7	595	26.8	146	6.6
1885	2881	100	2098	72.8	610	21.2	173	6.0
1886	3356	100	2481	73.9	673	20.1	202	6.0
1887	3036	100	2036	67.1	637	21.0	363	12.0
1888	3331	100	2366	71.0	747	22.4	218	6.5
1889	3328	100	2342	70.4	812	24.4	174	5.2
1890	3322	100	2287	68.8	820	24.7	215	6.5
1891	3315	100	2172	65.5	885	26.7	258	7.8
1892	3743	100	2614	69.8	925	24.7	204	5.5
1893	3437	100	2400	69.8	849	24.7	188	5.5
1894	3888	100	2690	69.2	988	25.4	210	5.4
1895	3972	100	2693	67.8	1035	26.1	244	6.1
1896	4053	100	2654	65.5	1092	26.9	307	7.6
1897	3156	100	2028	64.3	885	28.0	243	7.7
1898	4016	100	2664	66.3	1019	25.4	333	8.3
1899	2533	100	1260	49.7	985	38.9	288	11.4
1900	4096	100	2756	67.3	1090	26.6	250	6.1
1901	4226	100	3078	72.8	893	21.1	255	6.0
1902	4054	100	2803	69.1	993	24.5	258	6.4

Years	Total production of goods		Agriculture		Industry		Constructions	
	million USD	shares	million USD	shares	million USD	shares	million USD	shares
1	2	3	4	5	6	7	8	9
1903	4275	100	2945	68.9	1061	24.8	269	6.3
1904	3010	100	1677	55.7	1071	35.6	262	8.7
1905	4645	100	3149	67.8	1210	26.0	286	6.2
1906	5135	100	3453	67.2	1318	25.7	364	7.1
1907	3770	100	1960	52.0	1404	37.2	406	10.8
1908	4317	100	2371	54.9	1574	36.5	372	8.6
1909	4181	100	2332	55.8	1504	36.0	345	8.3
1910	5771	100	3641	63.1	1635	28.3	495	8.6
1911	5467	100	3293	60.2	1771	32.4	403	7.4
1912	5562	100	3110	55.9	1988	35.7	464	8.3
1913	5672	100	3227	56.9	1944	34.3	501	8.8
1914	4831	100	2468	51.1	1878	38.9	485	10.0
....								
1920	7317	100	4854	66.3	1719	23.5	744	10.2
1921	7631	100	4818	63.1	2004	26.3	809	10.6
1922	8978	100	5714	63.6	2352	26.2	912	10.2
1923	9863	100	6217	63.0	2735	27.7	911	9.2
1924	9620	100	5606	58.3	3083	32.0	931	9.7
1925	10311	100	5960	57.8	3277	31.8	1074	10.4
1926	11280	100	6767	60.0	3364	29.8	1149	10.2
1927	10956	100	6023	55.0	3660	33.4	1273	11.6
1928	11039	100	5879	53.3	3948	35.8	1212	11.0
1929	12119	100	7178	59.2	3728	30.8	1213	10.0
1930	11859	100	7002	59.0	3809	32.1	1048	8.8
1931	12250	100	7278	59.4	3775	30.8	1197	9.8
1932	11183	100	6319	56.5	3728	33.3	1136	10.2
1933	11812	100	6662	56.4	3945	33.4	1205	10.2
1934	11988	100	6172	51.5	4524	37.7	1292	10.8
1935	13122	100	6908	52.6	4789	36.5	1425	10.9
1936	13594	100	7241	53.3	4891	36.0	1462	10.8
1937	14264	100	7270	51.0	5292	37.1	1702	11.9
1938	14280	100	7521	52.7	5323	37.3	1436	10.1
1939	14699	100	7940	54.0	5271	35.9	1488	10.1
1940	9148	100	4176	45.6	4037	44.1	935	10.2
1941	9232	100	4155	45.0	4003	43.4	1074	11.6
1942	8388	100	3280	39.1	4021	47.9	1087	13.0
1943	10238	100	4556	44.5	4362	42.6	1320	12.9
1944	8422	100	4053	48.1	3272	38.9	1097	13.0
1945	6685	100	2360	35.3	3416	51.1	909	13.6
1946	6534	100	2266	34.7	3309	50.6	959	14.7
1947	8894	100	4223	47.5	3592	40.4	1079	12.1
....								
1950	15608	100	8171	52.4	6594	42.2	843	5.4
1951	19457	100	10224	52.5	8111	41.7	1122	5.8
1952	19136	100	9194	48.0	8630	45.1	1312	6.9
1953	21867	100	10771	49.3	9490	43.4	1606	7.3
1954	21980	100	10450	47.5	10263	46.7	1267	5.8
1955	26362	100	13237	50.2	11389	43.2	1736	6.6
1956	22093	100	8894	40.3	11082	50.2	2117	9.6
1957	27469	100	12965	47.2	12260	44.6	2244	8.2

Years	Total production of goods		Agriculture		Industry		Constructions	
	million USD	shares	million USD	shares	million USD	shares	million USD	shares
1	2	3	4	5	6	7	8	9
1958	26323	100	10514	39.9	13385	50.8	2424	9.2
1959	31184	100	13788	44.2	14620	46.9	2776	8.9
1960	34363	100	13957	40.6	17058	49.6	3348	9.7
1961	37186	100	14447	38.9	19080	51.3	3659	9.8
1962	38367	100	12955	33.8	21539	56.1	3873	10.1
1963	41345	100	13601	32.9	23733	57.4	4011	9.7
1964	45349	100	14193	31.3	26799	59.1	4357	9.6
1965	49407	100	14504	29.4	30295	61.3	4608	9.3
1966	55450	100	16578	29.9	33693	60.8	5179	9.3
1967	60622	100	16599	27.4	38068	62.8	5955	9.8
1968	65660	100	17848	27.2	41130	62.6	6682	10.2
1969	70998	100	17757	25.0	46221	65.1	7020	9.9
1970	77934	100	15322	19.7	53877	69.1	8735	11.2
1971	83507	100	18905	22.6	55858	66.9	8744	10.5
1972	92849	100	20696	22.3	62296	67.1	9857	10.6
1973	102318	100	19997	19.5	72155	70.5	10166	9.9
1974	106247	100	18708	17.6	77545	73.0	9994	9.4
1975	108985	100	18806	17.3	82411	75.6	7768	7.1
1976	122714	100	24819	20.2	86139	70.2	11756	9.6
1977	132880	100	23508	17.7	93685	70.5	15687	11.8
1978	144283	100	25765	17.9	101625	70.4	16893	11.7
1979	153543	100	25160	16.4	109878	71.6	18505	12.1
1980	139882	100	26550	19.0	98869	70.7	14463	10.3
1981	135819	100	30534	22.5	91801	67.6	13484	9.9
1982	140912	100	37343	26.5	90778	64.4	12791	9.1
1983	147727	100	32609	22.1	101111	68.4	14007	9.5
1988	157658	100	34545	21.9	108274	68.7	14839	9.4
1985	156586	100	34514	22.0	106553	68.0	15519	9.9
1986	160925	100	32706	20.3	112102	69.7	16117	10.0
1987	161096	100	32028	19.9	112576	69.9	16492	10.2
1988	161777	100	34021	21.0	112054	69.3	15702	9.7
1989	148068	100	32257	21.8	103491	69.9	12320	8.3
1990	143159	100	46098	32.2	85641	59.8	11420	8.0
1991	112670	100	34795	30.9	69775	61.9	8100	7.2
1992	104213	100	31885	30.6	64273	61.7	8055	7.7
1993	99804	100	35766	35.8	55182	55.3	8856	8.9
1994	103341	100	35568	34.4	57156	55.3	10617	10.3
1995	112404	100	37531	33.4	62362	55.5	12511	11.1
1996	116096	100	37845	32.6	65439	56.4	12812	11.0
1997	100128	100	33314	33.3	57190	57.1	9624	9.6
1998	83360	100	25554	30.7	48994	58.8	8812	10.6
1999	75029	100	23153	30.9	43172	57.5	8704	11.6

Years	Total production goods		Agriculture		Industry		Constructions	
	million USD	shares	million USD	shares	million USD	shares	million USD	shares
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
2000	73380	100	19722	26.9	44775	61.0	8883	12.1
2001	83552	100	25284	30.3	48470	58.0	9798	11.7
2002	85942	100	23824	27.7	51379	59.8	10740	12.5
2003	90370	100	25106	27.8	53885	59.6	11379	12.6
2004	100076	100	29780	29.8	57868	57.8	12427	12.4
2005	97929	100	24672	25.2	59435	60.7	13822	14.1
2006	106377	100	25501	24.0	63910	60.1	16967	15.9
2007	104413	100	18677	17.9	63910	61.2	21826	20.9
2008	120514	100	23903	19.8	67804	56.3	28808	23.9
2009	113527	100	21813	19.2	67088	59.1	24627	21.7
2010	118084	100	24021	20.3	70176	59.4	23887	20.2

Source: Calculated based on the data from the tables of sections B, C, D.

Table A 11

Gross value added in the *production of goods*, by branches *per capita*, in USD PPP 2000 and indexes, of the years, period 1862-2010

Averages of years	Total		Agriculture		Industry		Constructions	
	USD	indexes	USD	indexes	USD	indexes	USD	indexes
1	2	3	4	5	6	7	8	9
1862-1866	395	100	297	100	86	100	12	100
1867-1871	443	112.2	330	111.3	90	104.4	23	186.9
1872-1876	491	124.3	358	120.6	107	124.9	26	209.8
1877-1881	559	141.8	412	138.9	123	143.4	25	203.3
1882-1886	572	145.0	402	135.5	128	148.7	42	347.5
1887-1890	624	158.1	433	145.9	145	168.4	47	381.1
1891-1895	687	174.0	469	158.3	176	204.7	42	341.0
1896-1900	605	153.2	395	133.1	164	190.7	46	378.7
1901-1905	641	162.5	433	146.1	165	192.8	42	347.5
1906-1910	547	138.7	315	106.1	183	213.5	49	404.9
1911-1914	734	185.9	413	139.2	258	300.4	63	514.3
…………								
1920-1924	588	100.0	346	100.0	180	100.0	63	100.0
1925-1929	634	107.7	358	103.5	210	117.0	66	104.4
1930-1934	705	119.9	389	112.4	245	136.5	71	113.3
1935-1939	676	114.8	322	93.1	272	151.6	81	129.2
1940-1944	579	98.5	278	80.5	247	137.4	54	86.0
1945-1947[×]	466	79.3	187	54.0	218	121.2	62	98.4
…………								
1950-1954	428	100.0	224	100.0	179	100.0	24	100.0
1955-1959	1887	441.0	688	306.5	1024	571.0	174	726.7
1960-1964	2778	649.5	838	373.4	1665	928.1	276	1148.3
1965-1969	3991	932.8	896	399.3	2704	1507.1	391	1628.3
1970-1974	5526	1291.7	1017	453.3	3870	2157.1	639	2662.5
1975-1979	6128	1432.4	1335	595.0	4241	2363.9	552	2300.0
1980-1984	6563	1534.0	1365	608.5	4560	2541.6	638	2656.7
1985-1989	5489	1283.2	1498	667.4	3472	1935.3	520	2165.8
1990-1994	4503	1052.6	1426	635.7	2667	1486.6	410	1706.7
1995-2000	4141	968.1	1309	583.3	2380	1326.4	453	1887.5
2001-2005	482	112.6	1095	488.1	2817	1570.3	899	3744.2
2006-2010	196	45.7	410	182.5	1186	661.0	360	1499.2

Source: Calculated based on the data in Table A 12

Table A12

Gross added value in the *production of goods*, by branches in USD 2000, *per capita* and indexes, annual series, period 1862-2000

Years	Total		Agriculture		Industry		Constructions	
	USD	indexes	USD	indexes	USD	indexes	USD	indexes
1	2	3	4	5	6	7	8	9
1862	407	100	304	100	92	100	11	100
1863	450	110.6	358	117.8	81	88.0	11	100.0
1864	452	111.1	363	119.4	77	83.7	12	109.1
1865	320	78.6	223	73.4	85	92.4	12	109.1
1866	324	79.6	212	69.7	100	108.7	12	109.1
1867	427	104.9	327	107.6	86	93.5	14	127.3
1868	448	110.1	338	111.2	97	105.4	13	118.2
1869	440	108.1	325	106.9	84	91.3	31	281.8
1870	460	113.0	351	115.5	89	96.7	20	181.8
1871	435	106.9	337	110.9	80	87.0	18	163.6
1872	430	105.7	300	98.7	98	106.5	32	290.9
1873	464	114.0	336	110.5	96	104.3	32	290.9
1874	454	111.5	318	104.6	118	128.3	18	163.6
1875	550	135.1	403	132.6	113	122.8	34	309.1
1876	497	122.1	375	123.4	100	108.7	22	200.0
1877	488	119.9	357	117.4	109	118.5	22	200.0
1878	494	121.4	368	121.1	103	112.0	23	209.1
1879	516	126.8	362	119.1	134	145.7	22	200.0
1880	688	169.0	530	174.3	135	146.7	23	209.1
1881	447	109.8	294	96.7	128	139.1	25	227.3
1882	652	160.2	506	166.4	115	125.0	31	281.8
1883	562	138.1	392	128.9	135	146.7	35	318.2
1884	458	112.5	305	100.3	122	132.6	31	281.8
1885	581	142.8	423	139.1	123	133.7	35	318.2
1886	665	163.4	492	161.8	133	144.6	40	363.6
1887	594	145.9	398	130.9	125	135.9	71	645.5
1888	643	158.0	457	150.3	144	156.5	42	381.8
1889	633	155.5	446	146.7	155	168.5	32	290.9
1890	625	153.6	430	141.4	154	167.4	41	372.7
1891	615	151.1	403	132.6	164	178.3	48	436.4
1892	690	169.5	482	158.6	170	184.8	38	345.5
1893	627	154.1	437	143.8	155	168.5	35	318.2
1894	701	172.2	485	159.5	178	193.5	38	345.5
1895	705	173.2	478	157.2	184	200.0	43	390.9
1896	710	174.4	465	153.0	191	207.6	54	490.9
1897	545	133.9	350	115.1	153	166.3	42	381.8
1898	685	168.3	454	149.3	174	189.1	57	518.2
1899	425	104.4	212	69.7	165	179.3	48	436.4
1900	678	166.6	456	150.0	180	195.7	42	381.8
1901	690	169.5	502	165.1	146	158.7	42	381.8
1902	655	160.9	453	149.0	160	173.9	42	381.8

Years	Total		Agriculture		Industry		Constructions	
	USD	indexes	USD	indexes	USD	indexes	USD	indexes
1	2	3	4	5	6	7	8	9
1903	680	167.1	468	153.9	169	183.7	43	390.9
1904	464	114.0	258	84.9	165	179.3	41	372.7
1905	717	176.2	486	159.9	187	203.3	44	400.0
1906	780	191.6	524	172.4	200	217.4	56	509.1
1907	564	138.6	293	96.4	210	228.3	61	554.5
1908	638	156.8	350	115.1	233	253.3	55	500.0
1909	609	149.6	340	111.8	219	238.0	50	454.5
1910	829	203.7	523	172.0	235	255.4	71	645.5
1911	772	189.7	465	153.0	250	271.7	57	518.2
1912	769	188.9	430	141.4	275	298.9	64	581.8
1913	771	189.4	439	144.4	264	287.0	68	618.2
1914	622	152.8	318	104.6	242	263.0	62	563.6
...								
1920	475	100.0	315	100.0	112	100.0	48	100.0
1921	490	103.2	309	98.1	129	115.2	52	108.3
1922	567	119.4	361	114.6	149	133.0	57	118.8
1923	614	129.3	387	122.9	170	151.8	57	118.8
1924	590	124.2	344	109.2	189	168.8	57	118.8
1925	623	131.2	360	114.3	198	176.8	65	135.4
1926	672	141.5	403	127.9	200	178.6	69	143.8
1927	644	135.6	354	112.4	215	192.0	75	156.3
1928	640	134.7	341	108.3	229	204.5	70	145.8
1929	693	145.9	410	130.2	213	190.2	70	145.8
1930	662	139.4	391	124.1	213	190.2	58	120.8
1931	674	141.9	401	127.3	208	185.7	65	135.4
1932	607	127.8	343	108.9	202	180.4	62	129.2
1933	633	133.3	357	113.3	212	189.3	64	133.3
1934	634	133.5	326	103.5	239	213.4	69	143.8
1935	687	144.6	362	114.9	251	224.1	74	154.2
1936	704	148.2	375	119.0	253	225.9	76	158.3
1937	730	153.7	372	118.1	271	242.0	87	181.3
1938	723	152.2	381	121.0	270	241.1	72	150.0
1939	737	155.2	398	126.3	264	235.7	75	156.3
1940	688	144.8	314	99.7	304	271.4	70	145.8
1941	692	145.7	311	98.7	300	267.9	81	168.8
1942	622	130.9	243	77.1	298	266.1	81	168.8
1943	750	157.9	334	106.0	320	285.7	96	200.0
1944	615	129.5	296	94.0	239	213.4	80	166.7
1945	425	89.5	150	47.6	217	193.8	58	120.8
1946	414	87.2	144	45.7	210	187.5	60	125.0
1947	560	117.9	266	84.4	226	201.8	68	141.7
...								
1950	957	100.0	501	100.0	404	100.0	52	100.0
1951	1182	123.5	621	124.0	493	122.0	68	130.8
1952	1151	120.3	553	110.4	519	128.5	79	151.9
1953	1298	135.6	639	127.5	563	139.4	96	184.6
1954	1288	134.6	612	122.2	601	148.8	75	144.2

Years	Total		Agriculture		Industry		Constructions	
	USD	indexes	USD	indexes	USD	indexes	USD	indexes
1	2	3	4	5	6	7	8	9
1955	1522	159.0	764	152.5	657	162.6	101	194.2
1956	1263	132.0	509	101.6	634	156.9	120	230.8
1957	1541	161.0	727	145.1	688	170.3	126	242.3
1958	1458	152.4	582	116.2	741	183.4	135	259.6
1959	1710	178.7	756	150.9	802	198.5	152	292.3
1960	1867	195.1	758	151.3	927	229.5	182	350.0
1961	2003	209.3	778	155.3	1028	254.5	197	378.8
1962	2054	214.6	693	138.3	1153	285.4	208	400.0
1963	2198	229.7	723	144.3	1262	312.4	213	409.6
1964	2396	250.4	750	149.7	1416	350.5	230	442.3
1965	2596	271.3	762	152.1	1592	394.1	242	465.4
1966	2897	302.7	866	172.9	1760	435.6	271	521.2
1967	3144	328.5	861	171.9	1974	488.6	309	594.2
1968	3330	348.0	905	180.6	2086	516.3	339	651.9
1969	3548	370.7	887	177.0	2310	571.8	351	675.0
1970	3848	402.1	757	151.1	2660	658.4	431	828.8
1971	4080	426.3	924	184.4	2729	675.5	427	821.2
1972	4494	469.6	1002	200.0	3015	746.3	477	917.3
1973	4913	513.4	960	191.6	3464	857.4	489	940.4
1974	5053	528.0	890	177.6	3688	912.9	475	913.5
1975	5130	536.1	885	176.6	3879	960.1	366	703.8
1976	5722	597.9	1157	230.9	4017	994.3	548	1053.8
1977	6136	641.2	1085	216.6	4326	1070.8	725	1394.2
1978	6602	689.9	1179	235.3	4650	1151.0	773	1486.5
1979	6964	727.7	1141	227.7	4984	1233.7	839	1613.5
1980	6301	658.4	1196	238.7	4453	1102.2	652	1253.8
1981	6076	634.9	1366	272.7	4107	1016.6	603	1159.6
1982	6269	655.1	1661	331.5	4039	999.8	569	1094.2
1983	6550	684.4	1446	288.6	4483	1109.7	621	1194.2
1984	6969	728.2	1527	304.8	4786	1184.7	656	1261.5
1985	6891	720.1	1519	303.2	4689	1160.6	683	1313.5
1986	7051	736.8	1433	286.0	4912	1215.8	706	1357.7
1987	7022	733.8	1396	278.6	4907	1214.6	719	1382.7
1988	7018	733.3	1476	294.6	4861	1203.2	681	1309.6
1989	6396	668.3	1393	278.0	4470	1106.4	533	1025.0
1990	6169	644.6	1986	396.4	3690	913.4	493	948.1
1991	4860	507.8	1501	299.6	3009	744.8	350	673.1
1992	4573	477.8	1399	279.2	2820	698.0	354	680.8
1993	4386	458.3	1572	313.8	2425	600.2	389	748.1
1994	4546	475.0	1565	312.4	2514	622.3	467	898.1
1995	4956	517.9	1655	330.3	2750	680.7	551	1059.6
1996	5135	536.6	1674	334.1	2895	716.6	566	1088.5
1997	4441	464.1	1478	295.0	2537	628.0	426	819.2
1998	3704	387.0	1136	226.7	2177	538.9	391	751.9
1999	3341	349.1	1031	205.8	1922	475.7	388	746.2
2000	3271	341.8	879	175.4	1996	494.1	396	761.5

Years	Total		Agriculture		Industry		Constructions	
	USD	indexes	USD	indexes	USD	indexes	USD	indexes
1	2	3	4	5	6	7	8	9
2001	373	389.6	1128	225.2	2163	535.4	396	761.5
2002	396	414.2	1099	219.4	2370	586.6	495	951.9
2003	416	434.5	1155	230.5	2480	613.9	524	1007.7
2004	462	482.5	1374	274.3	2670	660.9	573	1101.9
2005	453	473.2	1141	227.7	2749	680.4	639	1228.8
2006	493	515.0	1181	235.7	2961	732.9	786	1511.5
2007	485	506.6	867	173.1	2968	734.6	1013	1948.1
2008	560	585.6	1112	222.0	3153	780.4	1340	2576.9
2009	529	552.6	1016	202.8	3125	773.5	1147	2205.8
2010	551	575.8	1121	223.8	3275	810.6	1115	2144.2

Source: Calculated based on the data in Table A 10 and the population of the country.

Table A 13
Gross added value per *employed person* in the branch, in USD 2000, in the production of goods per branches and in the production of services, averages per years, in the period 1862-2010

Years	Gross added value		Gross added value in the production of goods					Gross added value in the production of services	
	total million USD	per employed person USD	total million USD	per employed person in the branch				total million USD	per employed in services USD
				total USD	agriculture USD	industry USD	constructions USD		
1	2	3	4	5	6	7	8	9	10
1862-1866	2230	1050	1592	819	661	2717	4011	639	3562
1867-1871	2569	1156	1877	925	760	2644	5998	692	3576
1872-1876	2863	1242	2101	1001	786	3068	8037	762	3685
1877-1881	3400	1420	2388	1099	868	3441	6189	1012	4576
1882-1886	4051	1568	2840	1215	963	3441	8531	1211	4933
1887-1890	4599	1654	3254	1297	985	3841	11058	1345	4969
1891-1895	5316	1806	3671	1385	1042	4407	8962	1644	5604
1896-1900	5313	1684	3571	1261	884	4340	10136	1742	5392
1901-1905	6032	1772	4042	1328	992	4039	8308	1990	5562
1906-1910	7104	1930	4635	1412	930	5196	10870	2469	6228
1911-1914	8460	2101	5383	1506	940	6096	11161	3077	6816
…………									
1920-1924	13676	1463	8682	1064	719	4459	17007	4995	4189
1925-1929	17656	1761	11140	1276	796	5304	19079	6516	5039
1930-1934	18715	1742	11819	1282	792	5716	15684	6896	4535
1935-1939	21690	1901	13991	1417	821	6396	17409	7699	5011
1940-1944	14386	1817	9085	1338	655	7057	18210	5301	4730
1945-1947	10449	1063	7371	860	381	4626	12479	3078	2442
…………									
1950-1954	26966	3074	19610	2543	1554	7902	3802	7357	6948
1955-1959	36535	3867	26686	3262	1820	9755	6270	9849	7788
1960-1964	52707	5500	39322	4880	2354	13361	6752	13385	8807
1965-1969	80467	8190	60427	7581	3153	18911	8591	20040	10831
1970-1974	120585	12070	92571	11771	4256	24558	11599	28014	13198
1975-1979	173568	16923	132481	17028	6725	28176	15774	43087	17407
1980-1984	200951	19277	144399	18876	10589	25911	17282	56552	20381
1985-1989	218478	20339	157690	20034	10816	27148	19475	60788	21174
1990-1994	176918	16950	112637	15172	10886	19449	16108	64281	21254
1995-2000	169544	18904	93400	15006	8755	22450	24745	76144	27632
2001-2005	188402	22538	91574	17106	8863	26548	29282	96829	32460
2006-2010	243334	28475	112583	22801	9305	35527	37763	130751	36259

Source: Calculated based on the data in Table A 14

Table A 14

Gross added value per *employed person* in the branch, in USD 2000, in the production of goods by branches in the production of services, annual series, in the period 1862-2010

Years	Gross added value		Gross added value in the production of goods						Gross added value in the production of services	
	total	per	total	per employed person in the branch					total	per employed person in services
	mil. USD	employed person USD	mil. USD	total USD	agriculture USD	industry USD	constructions USD		mil. USD	USD
1	2	3	4	5	6	7	8		9	10
1862	2239	1071	1632	852	688	2910	3874		607	3487
1863	2450	1164	1818	943	810	2544	3783		632	3582
1864	2547	1195	1850	948	821	2420	4008		697	3875
1865	1961	910	1324	671	505	2635	4143		637	3482
1866	1955	910	1334	679	479	3077	4247		621	3385
1867	2388	1100	1773	894	741	2645	4132		615	3297
1868	2604	1187	1881	939	765	2964	4174		723	3812
1869	2566	1154	1871	921	737	2550	9667		695	3592
1870	2683	1192	1976	962	794	2667	6412		707	3589
1871	2604	1146	1886	910	763	2392	5608		718	3588
1872	2591	1135	1870	899	680	2906	9668		721	3566
1873	2760	1206	2021	969	762	2826	9352		739	3622
1874	2719	1186	1983	950	722	3455	5166		736	3580
1875	3173	1371	2419	1149	915	3284	9752		754	3611
1876	3070	1311	2210	1038	852	2871	6245		860	4048
1877	3154	1335	2187	1019	810	3131	6164		967	4487
1878	3241	1369	2217	1031	835	2922	6549		1024	4712
1879	3328	1391	2338	1076	822	3774	5612		990	4482
1880	4163	1732	3131	1436	1204	3804	6035		1032	4624
1881	3112	1272	2067	932	668	3572	6584		1045	4574
1882	4182	1684	3058	1359	1150	3175	8052		1124	4819
1883	3896	1538	2683	1170	891	3731	8643		1213	5071
1884	3372	1306	2225	953	693	3349	7542		1147	4680
1885	4140	1571	2880	1208	962	3345	8639		1260	5008
1886	4666	1739	3356	1384	1119	3605	9778		1310	5085
1887	4375	1609	3036	1236	907	3349	17116		1339	5101
1888	4603	1669	3332	1338	1040	3852	10005		1271	4747
1889	4677	1669	3328	1316	1014	4098	7760		1349	4931
1890	4740	1670	3320	1297	980	4066	9353		1420	5098
1891	4892	1698	3315	1277	917	4301	10921		1577	5548
1892	5321	1834	3744	1433	1098	4441	8472		1577	5480
1893	5132	1748	3437	1300	997	4007	7704		1695	5789
1894	5593	1883	3888	1455	1106	4586	8318		1705	5726
1895	5640	1867	3972	1462	1090	4699	9392		1668	5478
1896	5841	1906	4052	1472	1061	4863	11517		1789	5763
1897	4799	1542	3155	1128	799	3860	8870		1644	5185
1898	5891	1869	4018	1420	1037	4368	11870		1873	5804
1899	4165	1300	2535	882	483	4131	9984		1630	4942
1900	5869	1803	4096	1403	1042	4478	8438		1773	5264
1901	6148	1861	4225	1428	1148	3599	8392		1923	5600
1902	6006	1797	4055	1355	1035	3935	8301		1951	5586
1903	6260	1843	4277	1407	1071	4117	8424		1983	5558
1904	4864	1399	3010	968	596	4039	7930		1854	5050
1905	6883	1963	4645	1482	1112	4504	8495		2238	6015

Years	Gross added value		Gross added value in the production of goods					Gross added value in the production of services	
	total mil. USD	per employed person USD	total mil. USD	per employed person in the branch				total mil. USD	per employed person in services USD
				total USD	agriculture USD	industry USD	constructions USD		
1	2	3	4	5	6	7	8	9	10
1906	7521	2108	5135	1611	1200	4799	10517	2386	6272
1907	6062	1671	3772	1164	671	5003	11419	2290	5891
1908	6672	1815	4317	1316	802	5509	10222	2355	5949
1909	6654	1786	4181	1258	779	5169	9259	2473	6134
1910	8611	2273	5771	1709	1197	5500	12935	2840	6893
1911	8557	2217	5468	1591	1064	5822	10238	3089	7326
1912	8700	2206	5562	1585	985	6398	11537	3138	7235
1913	8805	2144	5672	1558	982	6223	11844	3133	6713
1914	7776	1836	4831	1289	729	5941	11023	2945	5992
...									
1920	11303	1245	7314	925	657	3673	16174	3989	3412
1921	12439	1354	7634	951	644	4024	16749	4805	4136
1922	13877	1488	8978	1103	756	4455	18024	4899	4130
1923	15341	1621	9863	1194	813	4901	17221	5478	4539
1924	15422	1606	9620	1149	725	5243	16866	5802	4725
1925	15957	1637	10311	1214	762	5303	18678	5646	4511
1926	17652	1786	11278	1310	856	5191	19214	6374	5002
1927	17995	1797	10956	1255	754	5398	20499	7039	5471
1928	17696	1742	11039	1248	728	5576	18820	6657	5080
1929	18979	1843	12116	1352	880	5051	18186	6863	5133
1930	19118	1830	11859	1307	849	5025	14908	7259	5279
1931	19608	1848	12250	1346	872	5558	16488	7358	4879
1932	17816	1656	11186	1220	747	5825	15167	6630	4164
1933	18253	1676	11812	1268	778	5801	15609	6441	4085
1934	18779	1700	11988	1268	712	6372	16252	6791	4267
1935	20456	1835	13119	1368	788	6472	17421	7337	4717
1936	21230	1882	13594	1397	816	6352	17384	7636	4918
1937	22301	1955	14264	1446	810	6615	19699	8037	5214
1938	21959	1903	14280	1427	828	6413	16189	7679	5011
1939	22506	1933	14699	1449	864	6129	16352	7807	5194
1940	14502	1870	9147	1364	687	7133	16121	5355	5095
1941	14942	1888	9231	1370	679	7161	18203	5711	4856
1942	14045	1767	8389	1227	527	7206	17820	5656	5105
1943	16069	2016	10237	1491	731	7845	20625	5832	5268
1944	12373	1546	8420	1236	653	5938	18283	3953	3327
1945	9629	983	6685	788	307	4778	13174	2944	2246
1946	9510	968	6534	763	292	4490	12139	2976	2369
1947	12208	1238	8894	1030	544	4611	12124	3314	2712
...									
1950	21519	2569	15608	2106	1313	6587	4532	5911	6119
1951	26919	3133	19457	2563	1640	7674	3753	7462	7447
1952	26400	3048	19136	2504	1479	8172	3575	7264	7115
1953	29706	3309	21867	2783	1706	8443	3833	7839	7012
1954	30287	3312	21980	2759	1634	8632	3317	8307	7046

Years	Gross added value		Gross added value in the production of goods					Gross added value in the production of services	
	total mil. USD	per employed person USD	total million USD	per employed person in the branch				total mil. USD	per employed person in services USD
				total USD	agriculture USD	industry USD	constructions USD		
1	2	3	4	5	6	7	8	9	10
1955	35783	3822	26362	3233	2028	9312	4308	9421	7792
1956	31243	3289	22093	2682	1351	8802	5373	9150	7263
1957	37564	3990	27469	3372	1981	9616	6883	10095	7954
1958	36211	3823	26323	3210	1602	10233	7323	9888	7774
1959	41873	4413	31184	3813	2136	10814	7462	10689	8159
1960	45727	4794	34363	4211	2233	11846	7108	11364	8247
1961	49553	5198	37186	4600	2399	12382	7037	12367	8530
1962	51358	5362	38367	4763	2231	13247	6217	12991	8530
1963	55654	5795	41345	5149	2377	14085	6459	14309	9085
1964	61241	6354	45349	5676	2533	15244	6938	15892	9643
1965	66475	6864	49406	6201	2639	16261	7567	17069	9941
1966	73932	7555	55450	6942	3069	17430	7919	18482	10279
1967	81010	8221	60622	7589	3125	19275	8495	20388	10926
1968	87256	8841	65660	8241	3420	20201	9372	21596	11354
1969	93664	9466	70998	8931	3511	21389	9603	22666	11653
1970	102181	10296	77934	9827	3125	24324	10744	24247	12166
1971	109389	11006	83507	10597	4090	22734	10916	25882	12570
1972	120416	12077	92848	11838	4701	23951	11735	27568	12955
1973	132087	13181	102318	13028	4727	25788	12308	29769	13737
1974	138851	13789	106247	13567	4636	25996	12293	32604	14562
1975	143518	14138	108985	13976	4869	26499	9404	34533	14676
1976	161058	15748	122714	15636	6650	26358	13863	38344	16118
1977	175928	17140	132880	17001	6607	27866	17508	43048	17585
1978	192693	18726	144283	18639	7641	29482	18322	48410	18992
1979	194644	18861	153543	19886	7855	30675	19770	51101	19662
1980	195161	18856	139882	18350	8603	26874	16859	55279	20271
1981	193119	18612	135818	17920	10071	24487	16897	57301	20487
1982	193935	18598	140912	18449	12349	23820	15929	53023	19005
1983	205067	19609	147727	19223	10660	26365	17708	57340	20678
1984	217474	20712	157657	20440	11263	28007	19018	59817	21463
1985	216349	20437	156586	20140	11283	27127	19694	59763	21260
1986	219938	20613	160925	20547	10671	28180	20427	59013	20794
1987	225630	21050	161096	20485	10470	28046	20850	64534	22604
1988	225060	20829	161777	20473	11100	27566	20339	63283	21799
1989	205414	18766	148068	18527	10555	24824	16063	57346	19413
1990	199195	18376	143158	18225	14662	21384	16176	56037	18773
1991	176737	16386	112670	15005	10856	18347	16168	64067	19551
1992	172346	16480	104213	14231	9261	19471	13912	68133	21733
1993	165375	16436	99804	13827	9897	18212	15429	65571	23056
1994	170937	17075	103341	14571	9753	19832	18858	67596	23157
1995	180831	19049	112403	17405	11495	22978	26119	68428	22546
1996	188434	20091	116096	17763	11399	23874	26973	72338	25444
1997	171385	18994	100129	15947	9827	23343	21923	71256	25968
1998	161608	18337	83360	13749	7617	21145	22537	78248	28454
1999	155628	18483	75029	12801	6674	21019	25751	80599	31496

Years	Gross added value		Gross added value in the production of goods					Gross added value in the production of services	
	total mil. USD	per employed person USD	total million USD	per employed person in the branch				total mil. USD	per employed person in services USD
				total USD	agriculture USD	industry USD	constructions USD		
1	2	3	4	5	6	7	8	9	10
2000	159375	18470	73380	12370	5517	22343	25164	85995	31885
2001	169146	19753	83552	14260	7220	24031	28818	85594	31655
2002	177955	21366	85942	15617	7902	24212	29343	92013	32559
2003	185660	22353	90370	16914	8693	26170	28735	95290	32153
2004	201341	24441	100076	19588	11289	28201	29659	101265	32363
2005	207910	24781	97929	19149	9213	30124	29853	109981	33572
2006	224725	26535	106377	21275	10127	32458	33073	118348	34116
2007	240669	27581	104413	20812	7577	32640	36743	136257	36737
2008	262757	30040	120514	23723	9931	34227	41629	142243	38791
2009	246671	29327	113527	23597	9047	37817	39335	133144	36985
2010	241851	28891	118084	24596	9845	40494	38036	123767	34669

Source: Calculated based on the data tables A1 columns 2, 4, 6, 8, 9, 10; A 6 columns 2, 4, 6; A 10 columns 4, 6, 8.

Table A 15

Share of added value per employed person, by branch, in the production of goods and in the production of services, period 1862-2010

Years	Total gross added value per employed person =100	Gross added value per employed person in the branch and in the production of goods				Gross added value per employed person in the production of services %/col.2
		total% as compared to column 2:	in agriculture %/col.2	in industry %/col.2	in constructions %/col.2	
1	2	3	4	5	6	7
1862	100	79.5	64.2	271.6	361.6	325.4
1863	100	81.0	69.6	218.6	325.0	307.7
1864	100	79.3	68.7	202.6	335.5	324.4
1865	100	73.8	55.5	289.6	455.3	382.7
1866	100	74.6	52.7	338.1	466.6	371.9
1867	100	81.2	67.3	240.3	375.4	299.6
1868	100	79.1	64.4	249.6	351.5	321.1
1869	100	79.9	63.9	221.1	837.9	311.3
1870	100	80.7	66.6	223.7	537.7	301.0
1871	100	79.4	66.6	208.7	489.3	313.1
1872	100	79.2	59.9	255.9	851.5	314.1
1873	100	80.4	63.2	234.4	775.6	300.4
1874	100	80.1	60.9	291.3	435.7	301.9
1875	100	83.8	66.7	239.6	711.5	263.5
1876	100	79.2	65.0	219.0	476.4	308.8
1877	100	76.3	60.6	234.5	461.6	336.0
1878	100	75.3	61.0	213.5	478.5	344.2
1879	100	77.4	59.1	271.4	403.5	322.3
1880	100	82.9	69.5	219.7	348.5	267.0
1881	100	73.3	52.5	280.9	517.7	359.6
1882	100	80.7	68.3	188.6	478.2	286.2
1883	100	76.0	57.9	242.5	561.9	329.7
1884	100	72.9	53.1	256.3	577.3	358.2
1885	100	76.9	61.2	212.9	549.8	318.7
1886	100	79.6	64.3	207.3	562.2	292.4
1887	100	76.8	56.4	208.1	1063.7	317.0
1888	100	80.2	62.3	230.8	599.5	284.4
1889	100	78.9	60.8	245.6	465.0	295.5
1890	100	77.7	58.6	243.5	560.0	305.3
1891	100	75.2	54.0	253.3	643.2	326.7
1892	100	78.1	59.9	242.1	461.9	298.8
1893	100	74.4	57.1	229.2	440.7	331.2
1894	100	77.3	58.7	243.5	441.7	304.1
1895	100	78.3	58.4	251.7	503.1	293.4
1896	100	77.2	55.6	255.1	604.1	302.3
1897	100	73.2	51.8	250.4	575.4	336.3
1898	100	76.0	55.5	233.7	635.1	310.6
1899	100	67.8	37.2	317.9	768.3	380.3
1900	100	77.8	57.8	248.4	468.1	292.0
1901	100	76.7	61.7	193.3	450.8	300.8
1902	100	75.4	57.6	219.0	461.9	310.9
1903	100	76.3	58.1	223.4	457.1	301.6
1904	100	69.2	42.6	288.8	567.0	361.1
1905	100	75.5	56.6	229.5	432.8	306.5

Years	Total gross added value per employed person =100	Gross added value per employed person in the branch and in the production of goods				Gross added value per employed person in the production of services %/col.2
		total% as compared to column 2:	in agriculture %/col.2	in industry %/col.2	in constructions %/col.2	
1	2	3	4	5	6	7
1906	100	76.4	56.9	227.6	498.9	297.5
1907	100	69.7	40.1	299.4	683.4	352.6
1908	100	72.5	44.2	303.5	563.2	327.8
1909	100	70.5	43.6	289.4	518.5	343.5
1910	100	75.2	52.7	242.0	569.2	303.3
1911	100	71.7	48.0	262.5	461.7	330.4
1912	100	71.8	44.6	290.0	522.9	327.9
1913	100	72.7	45.8	290.3	552.4	313.1
1914	100	70.2	39.7	323.6	600.3	326.3
......						
1920	100	74.3	52.7	294.9	1298.7	274.0
1921	100	70.3	47.6	297.1	1236.8	305.4
1922	100	74.1	50.8	299.4	1211.4	277.6
1923	100	73.7	50.2	302.4	1062.6	280.0
1924	100	71.5	45.1	326.5	1050.3	294.3
1925	100	74.1	46.6	323.8	1140.7	275.5
1926	100	73.3	48.0	290.7	1076.0	280.1
1927	100	69.9	42.0	300.4	1140.9	304.5
1928	100	71.6	41.8	320.0	1080.1	291.6
1929	100	73.4	47.7	274.2	987.0	278.6
1930	100	71.4	46.4	274.6	814.6	288.5
1931	100	72.8	47.2	300.7	892.1	264.0
1932	100	73.7	45.1	351.8	916.1	251.5
1933	100	75.7	46.4	346.2	931.5	243.8
1934	100	74.6	41.9	374.8	955.9	251.0
1935	100	74.5	42.9	352.7	949.3	257.0
1936	100	74.3	43.4	337.6	923.8	261.3
1937	100	74.0	41.4	338.4	1007.7	266.7
1938	100	75.0	43.5	336.9	850.6	263.3
1939	100	75.0	44.7	317.2	846.1	268.8
1940	100	73.0	36.7	381.5	862.2	272.5
1941	100	72.6	36.0	379.3	964.2	257.2
1942	100	69.4	29.8	407.7	1008.3	288.8
1943	100	74.0	36.3	389.2	1023.1	261.3
1944	100	79.9	42.3	384.0	1182.3	215.2
1945	100	80.2	31.2	485.8	1339.7	228.4
1946	100	78.8	30.2	463.7	1253.7	244.7
1947	100	83.2	43.9	372.3	979.0	219.0
......						
1950	100	82.0	51.1	256.4	176.4	238.2
1951	100	81.8	52.3	245.0	119.8	237.7
1952	100	82.2	48.5	268.1	117.3	233.4
1953	100	84.1	51.5	255.1	115.8	211.9
1954	100	83.3	49.3	260.7	100.2	212.8

Years	Total gross added value per employed person =100	Gross added value per employed person in the branch and in the production of goods				Gross added value per employed person in the production of services %/col.2
		total% as compared to column 2:	in agriculture %/col.2	in industry %/col.2	in constructions %/col.2	
1	2	3	4	5	6	7
1955	100	84.6	53.1	243.7	112.7	203.9
1956	100	81.5	41.1	267.6	163.3	220.8
1957	100	84.5	49.6	241.0	172.5	199.4
1958	100	84.0	41.9	267.7	191.6	203.3
1959	100	86.4	48.4	245.0	169.1	184.9
1960	100	87.8	46.6	247.1	148.3	172.0
1961	100	88.5	46.1	238.2	135.4	164.1
1962	100	88.8	41.6	247.1	116.0	159.1
1963	100	88.9	41.0	243.1	111.5	156.8
1964	100	89.3	39.9	239.9	109.2	151.8
1965	100	90.3	38.5	236.9	110.2	144.8
1966	100	91.9	40.6	230.7	104.8	136.1
1967	100	92.3	38.0	234.5	103.3	132.9
1968	100	93.2	38.7	228.5	106.0	128.4
1969	100	94.3	37.1	226.0	101.5	123.1
1970	100	95.4	30.4	236.2	104.3	118.2
1971	100	96.3	37.2	206.6	99.2	114.2
1972	100	98.0	38.9	198.3	97.2	107.3
1973	100	98.8	35.9	195.6	93.4	104.2
1974	100	98.4	33.6	188.5	89.2	105.6
1975	100	98.9	34.4	187.4	66.5	103.8
1976	100	99.3	42.2	167.4	88.0	102.3
1977	100	99.2	38.5	162.6	102.1	102.6
1978	100	99.5	40.8	157.4	97.8	101.4
1979	100	105.4	41.6	162.6	104.8	104.2
1980	100	97.3	45.6	142.5	89.4	107.5
1981	100	96.3	54.1	131.6	90.8	110.1
1982	100	99.2	66.4	128.1	85.7	102.2
1983	100	98.0	54.4	134.5	90.3	105.5
1984	100	98.7	54.4	135.2	91.8	103.6
1985	100	98.5	55.2	132.7	96.4	104.0
1986	100	99.7	51.8	136.7	99.1	100.9
1987	100	97.3	49.7	133.2	99.0	107.4
1988	100	98.3	53.3	132.3	97.6	104.7
1989	100	98.7	56.2	132.3	85.6	103.4
1990	100	99.2	79.8	116.4	88.0	102.2
1991	100	91.6	66.3	112.0	98.7	119.3
1992	100	86.4	56.2	118.1	84.4	131.9
1993	100	84.1	60.2	110.8	93.9	140.3
1994	100	85.3	57.1	116.1	110.4	135.6
1995	100	91.4	60.3	120.6	137.1	118.4
1996	100	88.4	56.7	118.8	134.3	126.6
1997	100	84.0	51.7	122.9	115.4	136.7
1998	100	75.0	41.5	115.3	122.9	155.2
1999	100	69.3	36.1	113.7	139.3	170.4
2000	100	67.0	29.9	121.0	136.2	172.6

Years	Total gross added value per employed person=100	Gross added value per employed person in the branch and in the production of goods				Gross added value per employed person in the production of services %/col.2
		total % as compared to column 2:	in agriculture %/col.2	in industry %/col.2	in constructions %/col.2	
1	2	3	4	5	6	7
2001	100	72.2	36.6	121.7	145.9	160.3
2002	100	73.1	37.0	113.3	137.3	152.4
2003	100	75.7	38.9	117.1	128.6	143.8
2004	100	80.1	46.2	115.4	121.4	132.4
2005	100	77.3	37.2	121.6	120.5	135.5
2006	100	80.2	38.2	122.3	124.6	128.6
2007	100	75.5	27.5	118.3	133.2	133.2
2008	100	79.0	33.1	113.9	138.6	129.1
2009	100	80.5	30.8	128.9	134.1	126.1
2010	100	85.1	34.1	140.2	131.7	120.0

Note: Calculated based on the data in Table A 14

Summarized statistical data **Table A 16**

Gross value added in the *production of goods*[1], by branches in USD PPP 2000, averages of the years, period 1862-2010

Averages of years	Total million USD	Trade million USD	Transportation, Communications, others million USD	Financial activities, insurances million USD	Public administration army million USD	Education, Agriculture, Health, assistance million USD	Real estate transactions, others[2] million USD
1	2	3	4	5	6	7	8
1862-1866	639	318	162	0.9	75		82
1867-1871	692	356	171	1.5	71		92
1872-1876	762	408	180	0.9	70		102
1877-1881	1012	594	215	2.3	87		114
1882-1886	1211	707	235	10	129		130
1887-1890	1076	707	280	17	191		149
1891-1895	1644	901	305	41	226		172
1896-1900	1742	896	339	59	260		204
1901-1905	1990	1015	404	67	257		247
1906-1910	2469	1293	447	90	344		294
1911-1914	1532	1605	512	174	439		346
1920-1924	4995	2748	691	366	441		748
1925-1929	6516	3033	1170	533	849		931
1930-1934	6896	2230	1302	327	2015		1022
1935-1939	7699	2999	1181	228	2179		1112
1940-1944	5301	1438	902	95	2059		808
1945-1947	1115	928	889	28	398		835
1950-1954	7357	1774	1637	467	770	1133	1134
1955-1959	9848	2673	2462	617	1048	1518	1531
1960-1964	13385	3167	3796	900	1516	2174	1832
1965-1969	20040	4868	5554	1336	2096	3400	2786
1970-1974	28014	5813	8680	2038	3118	5109	3256
1975-1979	43087	9614	13014	3383	3342	8272	5445
1980-1984	56552	12875	14885	6191	4962	7689	9950
1985-1989	60788	14090	16723	5051	5467	8976	10479
1990-1994	64281	20553	14683	7314	5620	8313	7798
1995-2000	76144	22823	16879	4556	6190	8141	17555
2001-2005	96825	30139	17494	2499	6448	8867	25910
2006-2010	130753	50152	24392	3141	4586	9198	34089

Source: Calculated based on the Table A17 data;

Note: [1] and [2], see notes 1, 2, 3, of Table A 17.

Summarized statistical data **Table A 17**

Gross value added in the *production of goods*, by branches in USD PPP 2000, annual series, period 1862-2010

Year	Total million USD	Trade million USD	Transportation, Communications others[2] million USD	Financial activities, insurances million USD	Public administration, army million USD	Education, agriculture, health, social assistance million USD	Real estate transactions[3] others million USD
1	2	3	4	5	6	7	8
1862	607	300	158	-	69		80
1863	632	325	160	-	67		80
1864	697	367	162	-	84		84
1865	637	304	163	-	84		86
1866	621	297	166	0.9	73		85
1867	615	299	166	1.0	62		88
1868	723	386	168	1.5	77		92
1869	695	355	172	1.6	74		94
1870	707	367	174	1.5	71		95
1871	718	373	176	1.7	73		96
1872	721	375	177	0.9	68		101
1873	739	379	187	0.8	72		101
1874	736	388	176	1.3	70		102
1875	754	399	178	1.0	73		104
1876	860	500	183	0.6	68		109
1877	967	537	241	0.6	79		110
1878	1024	591	222	2.5	100		111
1879	990	594	203	1.3	79		114
1880	1032	629	203	0.4	84		116
1881	1045	618	209	6.8	93		125
1882	1124	670	223	6.2	102		129
1883	1213	717	235	11	127		134
1884	1147	646	233	11	127		141
1885	1260	728	239	12	149		144
1886	1310	775	244	12	142		149
1887	1339	662	257	14	263		157
1888	1271	683	269	13	157		162
1889	1349	749	291	13	145		164
1890	1420	732	303	29	198		187
1891	1577	838	318	31	228		193
1892	1577	855	298	35	221		203
1893	1695	983	309	38	193		210
1894	1705	938	300	50	239		228
1895	1668	890	298	49	247		233
1896	1789	962	317	50	272		238
1897	1644	880	321	58	271		172
1898	1873	994	359	61	259		261

Years	Total million USD	Trade million USD	Transportation, communications, others[2] million USD	Financial activities, insurances million USD	Public administration, army million USD	Education, agriculture, health, social assistance million USD	Real estate transactions[3], others million USD
1	2	3	4	5	6	7	8
1899	1630	771	334	62	248		277
1900	1773	873	365	63	249		286
1901	1923	985	395	65	246		297
1902	1951	1006	403	68	237		305
1903	1983	1006	410	65	255		312
1904	1854	907	380	64	248		319
1905	2238	1170	431	75	298		339
1906	2386	1298	441	73	298		349
1907	2290	1262	365	88	291		372
1908	2355	1178	450	89	345		382
1909	2473	1229	475	92	370		399
1910	2840	1495	503	108	417		425
1911	3089	1674	538	134	414		463
1912	3138	1679	525	164	432		502
1913	3133	1665	487	187	443		538
1914	2945	1404	499	213	467		575
………							
1920	3989	2032	589	337	375		993
1921	4805	2591	688	342	484		1042
1922	4899	2687	700	367	405		1107
1923	5478	3151	681	383	451		1195
1924	5802	3279	798	402	490		1235
1925	5646	2788	956	425	592		1310
1926	6374	3158	1039	506	763		1414
1927	7039	3186	1439	555	932		1482
1928	6657	2992	1191	564	953		1521
1929	6863	3039	1227	612	1004		1593
1930	7259	2434	1366	673	1781		1678
1931	7358	2307	1404	363	2273		1374
1932	6630	2083	1401	235	1888		1258
1933	6441	2069	1201	182	1959		1212
1934	6791	2260	1139	182	2174		1218
1935	7337	2676	1205	196	2199		1257
1936	7636	2903	1155	243	2247		1331
1937	8037	3358	1193	234	2130		1356
1938	7679	3055	1224	244	1985		1415
1939	7807	3005	1129	225	2336		1337
1940	5355	1666	942	149	1807		940
1941	5711	1501	1046	84	2282		882
1942	5656	1464	972	84	2330		890
1943	5832	1499	813	95	2601		919
1944	3953	1060	737	63	1276		880
1945	2944	798	832	30	455		859
1946	2976	923	848	26	345		860

Years	Total	Trade	Transportation, communications, others[2]	Financial activities, insurances	Public administration, army	Education, agriculture, health, social assistance	Real estate transactions others
	million USD	million USD	million USD	million USD	million USD	million USD	million USD
1	2	3	4	5	6	7	8
1947	3314	1063	988	26	395		868
....							
1950	5911	1970	1185	353	596	903	904
1951	7462	2513	1471	459	751	1132	1136
1952	7264	2241	1669	459	759	1101	1035
1953	7839	2089	1866	529	868	1245	1242
1954	8307	2358	1993	533	875	1284	1264
1955	9421	2593	2201	603	1023	1503	1498
1956	9150	2739	2367	533	896	1302	1313
1957	10095	2702	2533	639	1083	1559	1579
1958	9888	2666	2551	603	1048	1489	1531
1959	10689	2667	2657	709	1189	1736	1731
1960	11364	2737	3062	780	1316	1895	1574
1961	12367	2903	3408	850	1436	2046	1724
1962	12991	3064	3729	850	1454	2099	1795
1963	14309	3262	4237	956	1612	2286	1956
1964	15892	3868	4541	1062	1764	2544	2113
1965	17069	3982	4946	1132	1926	2773	2310
1966	18482	4553	5045	1245	1933	3172	2534
1967	20388	5131	5627	1351	2050	3433	2796
1968	21596	5251	6001	1422	2194	3676	3052
1969	22666	5422	6153	1528	2374	3948	3241
1970	24247	4915	8263	1633	2519	4170	2747
1971	25882	5735	7486	1740	3141	4731	3049
1972	27568	5785	8228	1981	3246	5033	3295
1973	29769	6192	9134	2388	2985	5552	3518
1974	32604	6437	10285	2447	3700	6056	3679
1975	34533	6224	11153	2841	2813	6963	4539
1976	38344	7452	11927	3138	3100	7690	5037
1977	43048	9830	12752	3385	3344	8284	5453
1978	48410	11619	14762	3641	3591	8889	5908
1979	51101	12946	14478	3912	3859	9536	6370
1980	55279	13275	15454	4557	4755	7331	9907
1981	57301	13483	15466	4759	4957	8129	10507
1982	53023	12379	14442	4745	4745	7427	9285
1983	57340	12256	14225	8316	5252	7441	9850
1984	59817	12984	14838	8578	5101	8115	10201
1985	59763	13667	15288	5559	5791	9266	10192
1986	59013	13509	15879	4977	5214	9006	10428
1987	64534	15058	19121	5258	5497	8844	10756
1988	63283	15226	18319	4758	5234	8802	10944
1989	57346	12992	15008	4704	5600	8960	10082
1990	56037	13111	12265	5709	5921	9727	9304
1991	64067	24854	12335	4787	5707	9205	7179

Years	Total million USD	Trade million USD	Transportation, communications, others[2] million USD	Financial activities, insurances million USD	Public administration, army million USD	Education, agriculture, health social assistance million USD	Real estate transactions others million USD
1	2	3	4	5	6	7	8
1992	68133	23998	14264	8894	5706	8055	7216
1993	65571	20097	17031	8686	5280	7324	7153
1994	67596	20704	17518	8494	5486	7255	8139
1995	68428	19903	14595	9477	7013	8340	9100
1996	72338	23061	17740	5913	6110	8870	10644
1997	71256	21099	16657	3146	4997	6478	18879
1998	78248	23439	16390	3172	6344	8459	20444
1999	80599	23849	17234	2959	5745	8704	22108
2000	85995	25585	18656	2665	6929	7995	24165
2001	85594	24997	19552	2572	6347.0	7811	24315
2002	92013	26020	20596	2350	6652.0	8571	27824
2003	95290	29295	22406	2145	7137.0	8851	25456
2004	101265	32621	24887	2670	5987.0	9426	25674
2005	109981	37763	27368	2756	6118.0	9674	26302
2006	118348	44262	29271	2804	5044.0	8970	27997
2007	136257	49942	31100	3147	4899.0	8851	38318
2008	142243	55596	32312	3385	4580.0	9682	36688
2009	133144	49737	28880	3137	4137.0	9634	37619
2010	123767	51221	26398	3230	4268.0	8851	29799

Source: The data are calculated based on the adequate tables in sections B, C, D.

Notes: [1] The services by categories of resources, sectors, in the three intervals: 1862-1947, 1950-1979 and 1980-2010 were calculated, recalculated by following the same principles, yet the operations which were performed are specific, conditioned by the data sources. The main part of the accounts can be found in the three sub-periods: transportation and communications; trade; financial-banking and insurance activities; administration, army; education, research, health, social assistance; real estate transactions, etc. The other services are presented below and in the sources, for certain sub-periods: maintenance of roads, streets and bridges, commune household, in the years 1950-1979; using the houses in ownership, rent: in the intervals 1962-1947 and 1950-1979; employed household personnel between 1862-1947 and 1950-1979; liberal professions in the years 1862-1947, real estate transactions in the interval 1980-2010 and for the years 1950-1979 were estimated in accordance with the 4% average in the GDP in the years 1980-1985. Therefore, the data about certain services in certain time intervals do not appear in the sources; furthermore, the names of the services were modified several times, since the second half of the 21st century until now in the classifications of the national accounts. The official statistical sources do not always mention the equivalence between the old terms and new ones.

In accordance with the accounting methodology of the national accounts, the gross added of these services expressly mentioned in the statistical sources of the years 1980-2010, as household employed personnel, liberal professions, rent, which is calculated yet classified in the "others" chapter; they could not stand out. For the sub-period 1862-1947 the gross added value for the real-estate transactions due to the difficulties of information; liberal professions and in the 1950-1979 period due to the specificity of the state economy did not have a significant share in the national income, thus they are not in the statistical data. In order to obtain a relatively unitary presentation on groups of services, we cumulated, besides the accounts that cover the entire period, the services mentioned without continuity (column 9) in a single group, except for the account of communal household, maintenance of roads, bridges which was classified in the transportation and communications group. Therefore, the size of the indicators of these groups, as well as their share in the total services, shall be manifested as inherent deviations to their composition from different sub-periods. We would like to highlight for the interested reader, that all categories of mentioned services are presented and explained in each of the three Sections B, C, D of Part I volume I, 2012 edition.

[2] As of 1950 until 1979 the communal household and locative activities and roads and bridges maintenance are calculated.

[3] As of 1980 the statistics present the real-estate transactions account and others; the real estate transactions were also calculated for the period 1950-1979.

Structure[1] of the gross added value in the production of services, by branches, averages of the years, period 1862-2010

- % -

Averages of years	Total	Trade	Transportation, communications, others	Financial activities, insurances	Public administration, army	Education, agriculture, health social assistance	Real estate, others[2]
1	2	3	4	5	6	7	8
1862-1866	100	49.8	25.4	0.1	11.8		12.9
1867-1871	100	51.4	24.8	0.2	10.3		13.3
1872-1876	100	53.5	23.8	0.1	9.3		13.4
1877-1881	100	58.7	21.3	0.2	8.6		11.2
1882-1886	100	58.4	19.4	0.8	10.6		10.7
1887-1890	100	52.6	20.8	1.3	14.2		11.1
1891-1895	100	54.7	18.6	2.5	13.7		10.5
1896-1900	100	50.9	19.3	3.4	14.8		11.7
1901-1905	100	50.9	20.3	3.4	12.9		12.5
1906-1910	100	52.4	18.1	3.6	13.9		12.0
1911-1914	100	52.1	16.7	5.7	14.3		11.2
……							
1920-1924	100	54.8	13.9	7.4	8.9		15.0
1925-1929	100	46.7	17.9	8.1	12.9		14.4
1930-1934	100	32.3	18.9	4.7	29.3		14.9
1935-1939	100	38.9	15.4	3.0	28.3		14.4
1940-1944	100	27.2	17.1	1.8	38.3		15.6
1945-1947	100	30.1	28.9	0.9	13.0		27.2
……							
1950-1954	100	30.5	22.1	6.3	10.4	15.4	15.3
1955-1959	100	27.2	25.5	6.3	10.6	15.4	15.0
1960-1964	100	23.7	28.3	6.7	11.3	16.3	13.7
1965-1969	100	24.3	27.8	6.7	10.5	16.9	13.8
1970-1974	100	20.8	31.0	7.2	11.1	18.2	11.6
1975-1979	100	21.9	30.4	7.9	7.8	19.3	12.7
1980-1984	100	22.8	26.4	10.9	8.8	13.6	17.5
1985-1989	100	23.2	27.4	8.3	9.0	14.8	17.3
1990-1994	100	31.7	22.8	11.3	8.8	13.1	12.3
1995-2000	100	30.0	22.2	6.2	8.2	10.7	22.7
2001-2005	100	31.1	18.1	2.6	6.7	9.2	26.7
2006-2010	100	38.4	18.7	2.4	3.5	7.0	26.1

Source: Calculated based on the data in Table A 16

Notes: [1] and [2], see notes 1, 2, 3, of table A 17.

Table A 19

Dynamic of the gross added value in the production of services, by branches, averages of the years, period 1962-2010

- % -

Averages of years	Total	Trade	Transportation, communications	Financial activities, insurances	Public administration, army	Education, agriculture, health social assistance	Real estate transactions others
1	2	3	4	5	6	7	8
1862-1866	100	100	100	100	100		100
1867-1871	108.5	111.9	105.6	166.7	94.7		112.2
1872-1876	119.3	128.3	111.1	100.0	98.6		124.4
1877-1881	158.6	186.8	132.7	255.6	124.3		139.0
1882-1886	189.8	222.3	145.1	1111.1	148.3		158.5
1887-1890	210.7	222.3	172.8	1888.9	148.1		181.7
1891-1895	257.8	283.3	188.3	4555.6	118.3		209.8
1896-1900	275.5	281.8	209.3	6555.6	155.0		248.8
1901-1905	311.9	319.2	249.4	7444.4	98.8		301.2
1906-1910	386.8	406.6	275.9	10000.0	133.9		358.5
1911-1914	482.1	504.7	316.0	19333.3	127.6		422.0
1920-1924	100	100	100	100	100		100
1925-1929	130.5	110.4	169.3	145.6	192.5		124.5
1930-1934	138.1	81.1	188.4	89.3	456.9		136.6
1935-1939	154.2	109.1	170.9	62.3	494.1		148.7
1940-1944	106.2	52.3	130.5	26.0	466.9		108.0
1945-1947*	61.6	33.8	128.7	7.7	90.2		111.6
1950-1954	100	100	100	100	100	100	100
1955-1959	133.6	150.7	150.4	132.2	136.1	134.0	135.0
1960-1964	181.5	178.5	231.9	192.9	144.7	191.9	161.5
1965-1969	271.7	274.4	339.3	286.3	138.3	300.1	245.6
1970-1974	379.9	327.7	530.3	436.8	148.8	450.9	287.0
1975-1979	584.0	541.9	795.1	725.0	107.2	730.1	480.0
1980-1984	766.8	725.8	909.4	1326.8	148.5	678.6	877.1
1985-1989	824.3	794.3	1021.7	1082.5	110.2	792.2	923.7
1990-1994	871.7	1158.6	897.1	1567.5	102.8	733.7	687.4
1995-2000	1032.5	1286.5	1031.2	976.4	110.1	718.5	1547.5
2001-2005	1313.7	1698.9	1068.8	535.6	104.2	782.6	2284.0
2006-2010	1772.5	2827.1	1490.2	673.2	71.1	811.8	3005.0

Source: Calculated based on the data in Table A 16

Note: Base = 100 in the years 1950-1954

Summarized statistical data **Table A 20**

Gross value added in the production of services, by branches, *per capita* , in USD PPP 2000, averages of the years, period 1862-2010

Averages of years	Total USD	Trade USD	Transportation communications, USD	Financial activities, insurances USD	Public administration, army others USD	Education, agriculture health social assistance USD	Real estate transactions, others[2] USD
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1862-1866	156	78	40	0.2	18		20
1867-1871	163	84	40	0.2	17		22
1872-1876	174	93	41	0.2	16		24
1877-1881	223	131	48	0.2	19		25
1882-1886	249	145	48	0.2	27		29
1887-1890	258	135	54	3	37		29
1891-1895	299	164	55	7	41		32
1896-1900	300	153	58	10	44		35
1901-1905	315	161	64	11	41		38
1906-1910	364	191	66	13	51		43
1911-1914	419	219	70	24	60		46
1920-1924	313	172	43	23	28		47
1925-1929	379	177	68	31	49		54
1930-1934	374	121	71	18	109		55
1935-1939	396	154	61	12	112		57
1940-1944	394	107	67	7	153		60
1945-1947	195	59	56	2	25		53
1950-1954	442	134	98	28	46	68	68
1955-1959	553	150	138	35	59	85	86
1960-1964	715	169	203	48	81	116	98
1965-1969	1030	250	285	69	108	175	143
1970-1974	1356	281	420	99	151	247	158
1975-1979	1986	443	600	156	154	382	251
1980-1984	2519	574	663	275	221	343	443
1985-1989	2649	614	729	220	238	391	457
1990-1994	2805	897	641	320	245	362	340
1995-2000	3380	1013	749	202	275	361	780
2001-2005	4441	1383	1053	115	296	407	1188
2006-2010	6080	2332	1376	146	213	428	1585

Source: Calculated based on the data in Table A 21

Note: [1] and [2], see notes 1, 2, 3, of table A 17.

Summarized statistical data

Table A 21

Gross value added in the services activity[1], by branches, *per capita*, in USD PPP 2000, annual series, during the period 1862-2010

Years	Total	Trade	Transportation, communications	Financial activities, insurances	Public administration, army others	Education, agriculture health social assistance	Real estate transactions[2] others
	USD	USD	USD	USD	USD	USD	USD
1	2	3	4	5	6	7	8
1862	151	39	75	-	17		20
1863	156	40	80	-	17		19
1864	170	39	90	-	21		20
1865	154	39	74	-	20		21
1866	151	40	72	0.2	18		21
1867	148	40	72	0.2	15		21
1868	172	40	92	0.4	18		22
1869	163	40	83	0.4	18		22
1870	165	41	85	0.4	16		23
1871	166	41	86	0.4	17		22
1872	165	41	86	0.2	16		22
1873	169	43	87	0.2	17		22
1874	169	40	89	0.3	16		24
1875	171	41	91	0.2	17		22
1876	193	41	112	0.1	15		25
1877	216	54	120	0.1	18		24
1878	229	49	132	0.5	22		26
1879	218	45	131	0.3	17		25
1880	227	45	138	0.1	18		26
1881	226	45	134	1.5	20		26
1882	239	48	143	1.3	22		25
1883	254	49	150	2.2	27		26
1884	236	48	133	2.2	26		27
1885	254	48	147	2.3	30		27
1886	260	48	154	2.4	28		28
1887	262	50	130	2.6	51		28
1888	245	52	132	2.6	30		28
1889	257	55	142	2.4	28		30
1890	267	57	138	5.5	37		30
1891	293	59	155	5.8	42		31
1892	291	55	158	6.5	41		31
1893	309	56	179	6.9	35		32
1894	307	54	169	9.0	43		32
1895	296	53	158	8.7	44		32
1896	314	56	169	8.8	48		32
1897	298	55	152	10	47		36
1898	320	61	169	10	44		36

Years	Total	Trade	Transportation, communications	Financial activities, insurances	Public administration, army others	Education, agriculture health social assistance	Real estate transactions[2] others
	USD	USD	USD	USD	USD	USD	USD
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1899	273	56	129	10	42		36
1900	293	60	144	10	41		38
1901	314	64	161	11	40		38
1902	315	65	162	11	38		39
1903	315	65	160	10	40		40
1904	286	59	140	10	38		39
1905	346	67	181	12	46		40
1906	362	67	197	11	45		42
1907	343	55	189	13	44		44
1908	348	66	174	13	51		44
1909	360	69	179	13	54		45
1910	408	72	215	15	60		46
1911	436	76	236	19	58		47
1912	434	73	232	23	60		46
1913	426	66	226	25	60		49
1914	379	64	181	27	60		47
1920	257	38	131	22	24		42
1921	305	44	165	22	31		45
1922	307	44	168	23	25		47
1923	338	42	194	24	28		50
1924	353	49	199	24	30		51
1925	338	57	167	25	35		54
1926	377	61	187	30	45		54
1927	410	84	186	32	54		54
1928	383	69	172	32	55		55
1929	389	70	172	35	57		55
1930	402	76	135	37	99		55
1931	405	77	127	20	125		56
1932	360	76	113	13	102		56
1933	345	64	111	10	105		55
1934	359	60	119	10	115		55
1935	384	63	140	10	115		56
1936	395	60	150	13	116		56
1937	411	61	172	12	109		57
1938	389	62	155	12	101		59
1939	392	57	151	11	117		56
1940	403	71	125	11	136		60
1941	428	78	112	6	171		61
1942	419	72	109	6	173		59
1943	427	60	110	7	191		59
1944	288	54	77	5	93		59
1945	187	53	51	2	29		52
1946	188	54	58	2	22		52

Years	Total USD	Trade USD	Transportation, communications USD	Financial activities, insurances USD	Public administration, army others USD	Education, agriculture health social assistance USD	Real estate transactions[2] others USD
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1947	208	62	67	2	25		52
1950	362	73	121	22	37	55	55
1951	453	89	153	28	46	69	68
1952	442	100	135	28	46	66	69
1953	465	111	124	31	52	74	73
1954	487	117	138	31	51	75	75
1955	544	127	150	35	59	87	86
1956	523	135	157	30	51	74	76
1957	566	142	152	36	61	87	88
1958	548	141	148	33	58	82	86
1959	586	146	146	39	65	95	95
1960	618	166	149	42	72	103	86
1961	666	184	156	46	77	110	93
1962	695	200	164	46	78	112	95
1963	761	225	173	51	86	122	104
1964	840	240	204	56	93	134	111
1965	897	260	209	60	101	146	121
1966	966	264	238	65	101	166	132
1967	1057	292	266	70	106	178	145
1968	1095	304	266	72	111	186	156
1969	1133	307	271	76	119	197	163
1970	1197	408	243	81	124	206	135
1971	1264	366	280	85	153	231	149
1972	1334	398	280	96	157	244	159
1973	1429	439	157	115	143	267	168
1974	1550	489	167	116	176	288	175
1975	1625	525	153	134	132	328	213
1976	1788	556	205	146	145	359	235
1977	1988	589	185	156	154	382	253
1978	2215	675	204	167	164	407	270
1979	2314	657	185	177	175	432	286
1980	2490	696	598	205	214	330	447
1981	2564	692	603	213	222	364	470
1982	2359	643	551	211	211	330	413
1983	2542	631	543	369	233	330	437
1984	2644	656	574	379	225	359	451
1985	2630	673	601	245	255	408	449
1986	2585	696	592	218	228	395	457
1987	2813	834	656	229	240	386	469
1988	2745	795	660	206	227	382	475
1989	2477	648	561	203	242	387	435
1990	2415	528	565	246	255	419	401
1991	2763	532	1072	206	246	397	310

Years	Total	Trade	Transportation, communications	Financial activities, insurances	Public administration, army others	Education, agriculture health social assistance	Real estate transactions[2] others
	USD	USD	USD	USD	USD	USD	USD
1	2	3	4	5	6	7	8
1992	2990	626	1053	390	250	353	317
1993	2882	748	883	382	232	322	314
1994	2974	771	911	374	241	319	358
1995	3017	644	878	418	309	368	400
1996	3200	785	1020	262	270	392	471
1997	3160	739	936	140	222	287	836
1998	3477	728	1042	141	282	376	908
1999	3589	767	1062	132	256	388	984
2000	3833	832	1140	119	309	356	1077
2001	3820	1116	873	115	283	349	1085
2002	4244	1200	950	108	307	395	1283
2003	4385	1348	1031	99	328	407	1171
2004	4672	1505	1148	123	276	435	1185
2005	5086	1746	1266	127	283	447	1216
2006	5483	2051	1356	130	234	416	1297
2007	6327	2319	1444	146	227	411	1779
2008	6615	2585	1503	157	213	450	1706
2009	6202	2317	1345	146	193	449	1752
2010	5775	2390	1232	151	199	413	1390

Source: Calculated based on the data from the tables corresponding to sections B, C, D.

Note: [1] and [2], see notes 1, 2, 3, of table A 16.

Section B
THE GROSS DOMESTIC PRODUCT OF ROMANIA DURING 1862-1947
Historical and methodological introduction

Section B of our study aims to present, in the form of summarized statistical statements, the results of the researches regarding the gross domestic product of Romania during the period 1862-1947, expressed in the macro aggregates chain at the level of the national economy. This section represents a systematic and focused summary of the calculations and methods presented in a detailed manner in the Volume II of our previous paper, the Romanian edition-2012[10].

The researches and presentation of their outcomes, regarding the gross domestic product of Romania during the period 1862-1947, represent the **backbone** that was completed until 2010, by recalculating and matching the GDP indicators of the period 1950-2010 in the official statistics.

From this perspective we will explain the manner in which the GDP data were converted from national currency - comparable lei 1913 - to USD PPP 2000, necessary in order to understand the general benchmark of comparing the entire period 1862-2010. First of all, the indicators expressed initially in lei 1913 were converted into ***gold USD 1913***, by the metal parity of 5.18 lei gold = 1 USD gold; between 1890 and 1913 the gold ounce - 31.101g - had a price of 20.67 USD and 1 USD = 1.505 g of fine gold; in the same period, 1 lei contained 0.2903 g of fine gold, thus the ratio between the two currencies being 1:5.18[11].

In the context of that time, the benchmark utilized at the global level was of *gold specie standard*, based on the right of stamp gold coins and on the free circulation of gold on the market, in the form of coins and gold bars, domestically, as well as among different countries. This ensured that the nominal value of the coins would be equivalent with the commercial value of the gold that they contained; the free circulation of gold had as result the fact that the value of the precious metal from one country was equivalent to its value in all countries; under the circumstances in which until the first World War, the tariff barriers had

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[10] Victor Axenciuc, *Produsul intern brut al României 1862-2000*, Volume I; *Produsul intern brut 1862-1947*, Volume II, Edit. Economică, Bucureşti, 2012.

[11] It has to be mentioned that the leu, in the national monetary system, adopted in 1867, officially losses for the first time the capacity to be converted in 1916 and the second time in 1941, after the stabilization in 1929; it regains it only in the tenth decade of the 20th century. The USD capacity to be converted was suspended in 1973; the American currency, without the capacity to be converted, entered an obvious inflationary process. If between 1913-1973, in 60 years, the depreciation index of the USD GDP increased by 24.5 percentage points out of 100 in the interval, 1973-2000, in only 27 years, the index increased by 68.2 percentage points. The non-convertible USD is fluctuates much more, depending on the index of the prices and the purchasing power.

low levels, in international trade, maintaining a relatively balanced ratio between the price of gold at the global level and the price of the goods that it expressed was maintained. The situation also manifested in the case of the exchange rate remained very stable; in 22 years between 1892-1914, the Bucharest stock exchange for 100 francs Gold, the minimum value was 100.10 lei and the maximum one of 101.75 lei, and for a pound was 25.22 lei and 26.68 lei respectively. Based on the metal parity the exchange rate was close to the purchasing parity, being both tightly correlated. That is why, during the mentioned period, inmedium and long term economic studies, the issue of comparing data, nominal indicators was not questioned.

Therefore, using as base for the metal parity the equivalent of the two convertible currencies, lei and USD in 1913, of 1 USD=5.18 lei, considered based on the above arguments, as being hypothetically close to the purchasing power parity, we can accept, as a plausible option, the change the indicators initially expressed in lei 1913 in USD PPP 1913 until we find a better solution.

Nevertheless, the USD 1913 currency is one century far from the current perception of the USA benchmark currency. The studies regarding the GNP and GDP of different countries mostly use the USD at the purchasing power parity, by transforming the national currencies, in the time horizon of the period 1990-2000.

In our calculations presenting the macroeconomic synthesis indicators, the benchmark currency is the international USD of 2000; the 1913 USD is the transition currency for the 1862-1947 period, from the national currency to the international benchmark; the 2000 USD represents its current version. In order to make comparisons of the global indicators for the entire period 1862-2010, we cannot use the national currency, the leu; as a general rule, the international USD is utilized, represented by the USD PPP for different years and accepted by the international monetary and statistical institutions.

By calculations, the GDP indicators were converted from comparable lei 1913 to USD PPP 1913 and then to the currency of 2000. In order to convert the 1913 USD in USD 2000 at the purchasing power parity - PPP - we used the depreciation rate of the USD, calculated in the paper of Samuel H.Williamson[12]. The depreciation of the USD is the year 2000 is 13.6 times compared to the year 2013.

We have adopted the method of using the price depreciation coefficient of USA GDP instead of the consumer price depreciation coefficient, since lately the international studies

[12] Samuel H.Williamson, *Six Ways to Compute the Relative Value of a U.S.Dollar Amount, 1774 to present*. *Measuring Worth*, 2008.

consider this solution as being more plausible for indirectly expressing the relative purchasing parity.

Regarding the conversion calculations presented above, it has to be mentioned that the average prices of 1913, expressed in lei 1913 and transposed in USD 1913, at the PPP, derive from the structures of the Romanian economy of the said year; the conversion period contains the indicators of the previous interval, from 1862 to 1913, and the next interval, 1920-1947, the structural changes not being fully reflected through the prices, which affect, in a certain manner, the comparison capacity. A mitigating circumstance is that of maintaining the economy, along this period, mainly as agrarian profile; the share of the intermediary consumption and respectively, of the gross added value with small changes between 1862 and 1947 confirms this. This observation refers also to converting USD PPP 1913 in USD PPP 2000 by the depreciation coefficients that were utilized. Therefore, the calculation modalities which were used and the limitations mentioned induce a certain level of relativity in the value of the GDP indicators expressed in PPP USD 2000, which cannot be avoided, yet which shall be taken into account by the reader or the user of these aggregates.

Therefore, by excluding as non-efficient the transformation of the value data from the national currency - lei - into the international comparable currency - USD - using the exchange rates for these currencies, on the one hand, and taking into account that the author of this paper was not able to develop, through his own means, an equivalence computation of the GDP from lei into USD through the purchasing power parity of the two currencies, for such a long period of time, for the purpose of this paper the hypothetical procedure of the simplified calculation as shown above will be used.

In order to open the picture of the outcome indicators evolution of the economic process during the 1862-1947 interval, we will display first of all some **basic elements of the human and material potential,** as well as **of the social production of the country** during this period of time.

In the Romanian agrarian economy, and afterwards mainly agrarian, during the analyzed period, the essential role in producing value was held by first of all *the human potential and natural resources.* As the modernization took place and the technical means were assimilated, especially in the extraction and processing branches, the efficiency of the social labor increased, as well as of resources utilization, and therefore, the production of goods and services also increased. Some of the main factors of the economic and social potential, in the dynamic of the period, are as follows:

Table Ba

Total, active, rural population, arable surface and installed capacity in the industry, per selected years, 1862-1947

Years[1]	Population			Share of rural population %	Arable surface		Engine power in the industry	
	Total thousand inhabitants	inhabitants per km²	Active persons thousand		thousand ha	ha per 100 inhabitants	thousand kw	kw per 100 inhabitants
1	2	3	4	5	6	7	8	9
1862	4019	33	2243	82.8	2982	74	–	–
1882	4688	36	2616	82.8	5145	110	–	–
1900	6045	46	3373	81.2	5980	99	38.9	0.6
1914	7771	56	4334	82.0	6327	81	146.6	1.9
1920	15541	53	9076	77.8	10695	69	(390)	2.5
1939	19934	68	11641	81.8	13384	67	1250	6.3
1942	13486	69	7878	78.6	8437	63	1155	8.6
1947	15893	67	9885	76.6	9094	57	1521	9.6

Source: The data are taken from the Statistical Yearbook of Romania, 1904-1948, and the paper of Victor Axenciuc, *Evoluţia economică a României. Cercetări economico-statistice, 1859-1947*, Vol.1, 2, 3, Editura Academiei Române, 1992, 1996, 2000.
Note: The horizontal lines mark the territorial and patrimonial changes of the country in 1918, 1940 and 1945.

The total and active population in parallel, as fundamental factor of production, increased 1.9 times during the period 1862-1914, respectively almost doubled; out of this, the rural population represented, on average, 82%, the Romanian society having a predominantly peasant basis.

During the inter-war decades, 1920-1939, which started by doubling the population, following the unification of the country in 1918, the demographic potential increased by 28%, Romania's population reaching in 1939 almost 20 million inhabitants. In a harmful decade, after 1939, due to the territorial dismantling of 1940, the World War, its consequences and peace treaties, the population of the country was reduced almost to the limit of the year 1920, was cut down to 15.9 million inhabitants. The demographic potential represented, in an economy structured on extensive development, the driver of economic growth.

The second major potential element, specific to the economy of Romania during that period was the *productive surface, especially the arable land,* which ensured most of the agricultural production. In half a century, 1862-1914, the arable land, exceeding the growth of the population, was extended more than twice, from 3 to 6.4 million hectares, mainly due to a decrease in the surface of pastures and meadows to half of their initial surface. That was the period of great trenching which was finalized by an excessive high ratio of grains within the agriculture.

During the inter-war years the process continued, yet at a slower pace. What is significant is the reduction of the arable surfaces per capita due to the big demographic increases; after six and a half decades, with all the territorial changes, in 1947, each inhabitant in Romania had only 0.57 ha as compared to 1.1 ha in 1882. The drastic reduction of the arable surface per capita, in the conditions of maintaining the production processes with manual labor and handling and low yields, led, after the second decade of the 20th century, to an absolute reduction of the contribution of the agricultural potential, of its production to economic growth, to its final results, the gross domestic product.

Another quantifiable element, included among the rationales of its potential, as the *installed capacity* of the modern, mechanized industry, a sector with the function of transforming the production and its economic and social structures; it was the outcome of innovation and labor, meant to capitalize at a higher level, the human and natural resources. It was felt in the growth drivers at the beginning of the 20th century with 0.6 kW for 100 inhabitants, reaching in 15 years - in 1914 to 1.9 kW - and steadily increasing in the following three decades up to 9.6 kW. The industrial technical potential, multiplied by 15 times per capita and reflected in the same manner in the volume of industrial production, increased its contribution to the country's production and led this sector, during the fourth decade, to the front position of the created value and efficiency in Romania.

In 1939, the large mechanized industry, with 380 thousand persons employed, produced a gross added value of 1378 mil. lei (1913), while agriculture, with an active population of 9110 thousand persons, produced a gross added value, together with that of the household production and transportation with animals of 3677 mil. lei (1913); therefore, the agriculture registered 404 lei per person and the mechanized industry 3626 lei, 9.1 times more; it was the difference between the employed manual agricultural labor, with poor qualification, using half of the working period, rudimentary endowed, on the one hand, and the mechanized industrial labor and equipment on the other hand. A decrease in the share of agricultural production and an increase in the share of industrial production in the total production of goods will be chronologically noticed further on.

Another element of our approach, a condition which directly depends on the size, structure and evolution of global indicators is the *social production of goods and services;* the field of economic and social activities constitutes the solid and safe foundation, in particular for a country like Romania, of the resources of new created value for the consumption of the population and for development.

From this perspective we will present the contribution of the sectors and activities to the country's production, in a concentrated manner, on eight intevals of the years, out of the 17 of 4-5 years, of the analyzed period.

Table Bb

Production of goods and services, total and breakdown by sectors, in lei 1913, averages of the selected years, period 1862-1947

Averages of the years	Total production of goods and services		Production of goods in:								Production of services	
			total		agriculture and others		industry		constructions			
	mill. lei	%	mill. lei	%	mill. lei	%	mill. lei	%	mill. lei	%	mill. lei	%
1	2	3	4	5	6	7	8	9	10	11	12	13
1862-1866	**1400**	**100**	**1037**	**74.1**	**701**	**50.1**	**303**	**21.6**	**33**	**2.38**	**363**	**25.9**
1882-1886	**2418**	**100**	**1746**	**722**	**1101**	**45.5**	**510**	**21.1**	**135**	**5.56**	**673**	**27.8**
1896-1900	**3298**	**100**	**2315**	**702**	**1228**	**37.2**	**855**	**259**	**232**	**7.03**	**983**	**29.8**
1911-1914	**5247**	**100**	**3508**	**66.9**	**1634**	**31.3**	**1550**	**29.5**	**374**	**7.13**	**1739**	**33.1**
……	……	……	……	……	……	……	……	……	……	……	……	……
1920-1924	**8968**	**100**	**6066**	**67.6**	**3239**	**36.1**	**2118**	**23.6**	**709**	**7.91**	**2901**	**32.4**
1935-1939	**14664**	**100**	**9886**	**67.4**	**4306**	**29.4**	**4226**	**28.8**	**1355**	**924**	**4778**	**32.6**
1940-1944	**10090**	**100**	**6596**	**65.4**	**2429**	**24.1**	**3188**	**31.6**	**979**	**9.70**	**3494**	**34.6**
1945-1947	**7338**	**100**	**5422**	**73.9**	**1798**	**24.5**	**2760**	**37.6**	**864**	**11.78**	**1916**	**26.1**

Note: The data are based on the tables of chapters 1, 2, 3, Volume II, 2012 edition.

For a period of 7 decades 1862-1939 without the years 1915-1919, the Romanian economy witnessed a period of development, especially during the first five decades 1862-1914. What is significant is that during these decades, the agricultural production increased 2.3 times, the industrial one almost 5 times, noticing the crucial process of moving from the exclusively manual production to the mechanized one, becoming predominant in 1914 in the industrial sector. In its turn, the constructions sector, although still using the manual technique and labor, registered the fastest growth, supported by the modernization of the Romanian society - buildings, urban dwellings, industrial constructions, railways, ports, warehouses, urban public works. With all these modern developments, the share of the goods sectors in the total production decreases from 74% at the beginning of the period to 66.9% before the first World War, with a reduction of 7 percentage points, due to the fast development of services, their volume being multiplied by 4.8 times in 5 decades, and their share in the total economic activity increasing from 26% to 33.1%.

Thus, the data confirm that the period between the reign of A.I.Cuza until 1914 had the most significant development and the biggest economic growth during the entire period, between the middle of the 19th century until the middle of the 20th century, increasing the volume of goods and services between 1862-1914 by 53% in each decade.

The losses and destructions endured by Romania and the damage compensations paid following the two World Wars (1916-1918, 1941-1945), to which the effects of 1929-1933 economic crisis were added, led to a slower economic growth during more than three decades 1915-1947, burdened by big difficulties and deficits; the war, crisis and recovery years cumulated more than two decades (21years), and those of actual growth of only one decade, could not compensate and overcome the damages suffered by the national economy.

Table Bc

Production of goods and services, *per capita* in lei 1913, in the main sectors and dynamics, averages of the selected years, 1862-1947

Averages of the years	Total production of goods and services		Production of goods						Total production of services	
			agriculture		industry		constructions			
	lei	%	lei	%	lei	%	lei	%	lei	%
1	2	3	4	5	6	7	8	9	10	11
1862-1866	343	100	172	100	74	100	8	100	89	100
1882-1886	497	145	226	132	105	142	28	350	138	155
1896-1900	561	164	209	122	146	197	39	488	167	188
1911-1914	713	208	222	129	204	275	51	638	236	265
...										
1920-1924	561	164	203	118	133	180	44	550	182	204
1935-1939	751	219	221	128	216	292	69	863	245	275
1940-1944	748	218	180	105	236	319	73	913	259	291
1945-1947	464	135	114	66	175	236	55	688	121	136

Note: Calculations based on the data in Table Bb and the population of the country.

Therefore, after the development was balanced, following the unification of the country - 1918 - and after the material and human patrimony increased 2.1-2.3 times, the fifth decade, with territorial splits, big war costs, damages and the burden of the economic ruin and the external debt, pushed the global production per capita until 1947 seven decades backwards, as it results from the table below. This was the legacy of Romania at the beginning of the second half of the 20^{th} century.

The Table Bc shows the production of the main sectors of goods and services, per capita, in parallel with their indexes with the base = 100 at the beginning of the period - 1862 - 1866. In this respect, the evolution seems to be different from the one presented in the previous table. First of all, the total production shows for the first part of the interval, until 1914, only a doubling - 208%; after its reduction in the period 1920-1924, until the end of the fourth decade, there is an increase of only five percentage points per capita; however, in the war years until 1947 the decline fell severely, from 218% to 135%, as compared to 100% at the beginning of the period - 1862-1866. On the other hand, the sectors evolve in a different manner; the agricultural production, in five decades, until 1914 witnessed a development of only 29% per capita, and at the end of the inter-war years, its level remained the same as the average of 1911-1914. Among all the sectors the agricultural production, as compared to the 100% level of 1862-1866, encountered the most significant decrease, to 105% during the Second World War - 1940 - 1944 - and to 66% in the post-war period - 1945 - 1947 - respectively a fall with one third - 34% - below the initial average of - 1862-1866. Agriculture, having an important share in the total production and population of the country, hit by the drought of the two post-war years 1945 and 1946 negatively influenced the state of the entire social and economic situation.

The trajectory of the industry looks totally different; under the qualitative aspect, it recorded, as mentioned, a deep transformation under the circumstances of the industrial revolution, and, from the quantitative aspect, it marked an increase per capita of 176% until 1914, but only by 16 percentage points during the inter-war years as compared to the level of 1914; the second World War requires the industrial production for the army, which acquires, as compared to the previous interval, an additional 27 percentagepoints; yet, during the first years of the recovery, until 1947, its advance was substantially lost, respectively 83 percentagepoints.

The constructions, required by the modernization of the country, are the sector with the biggest increases per capita until 1914, namely 6.4 times; their production increased until the end of the inter-war decades by 35% above the level of 1911-1914, growing even during the inter-war years, 1940-1945, without significantly decreasing during the recovery period until 1947. A similar dynamics with that of the industrial production witnessed the service sector; until 1914 it recorded an increase by 2.7 times per capita, and during the next period, 1920-1944, except for 1920-1924, by growing in a constant manner up to 2.9 times during the inter-war years, after which, in 1945-1947, decreasing more than any other sector, with 47% as compared to the previous level.

Lastly, in order to better understand how the macroeconomic indicators evolved, below *their structure by sources will be analyzed,* respectively their composition and contribution to the total production of goods per capita.

Table Bd

Structure of the production of goods *per capita*, of the main sectors, averages of the selected years, period 1862-1947

Averages of the years	Production in			
	Total	agriculture	industry	constructions
1	2	3	4	5
1862-1866	100	68	29	3
1882-1886	100	63	29	8
1896-1900	100	53	37	10
1911-1914	100	47	43	10
....				
1920-1924	100	53	35	12
1935-1939	100	43	43	14
1940-1944	100	37	48	15
1945-1947	100	33	51	16

Note: Calculated based on Table Bc.

No other trend in the evolution of the production of goods is more relevant than that of the structural changes of the three sectors; they are placed in an irreversible manner in the whole of the period, on opposite trends: of agricultural production through the fall down to half, in the total production, from the share of 68% at the beginning of the period to 33% at its end, opposed to the industrial production and constructions trend, with an increase in the shares, the first one increasing from 29% to 51%, and the second one from 3% to 16%, both sectors holding in the production per capita approximately one third at the beginning of the period and two thirds at its end. We would like to remind the previous mentions, in accordance with which, an important role in emphasizing these trends was played by the adverse conditions for agriculture during the period 1945-1946.

After we presented some *prerequisites*of the final outcomes of the Romanian economy, we focus the **evolution and structure** of thegross domestic product in certain important aspects; however presenting the outcomes of a significant volume of statistical data is done only in a summarized terms.

The chronological benchmarks of the indicators are only averages of the years, selected in such a way as to reflect, in the best possible manner, the evolution and trends of the real phenomena. Thus, out of 17 intervals, as averages of 4-5 years, as included in the period 1862-1947, in order to be concise when presenting the facts and point out the basic milestones of development, we selected six intervals as being the most significant ones; 1862-1866 and 1911-1914; 1920-1924 and 1935-1939; 1940-1944; 1945-1947. They facilitate a substantiated image of the outcomes evolution of global outcomes of the national economy; of course, the summarized presentation of the synthetic data is far from being an analysis of the indicators; it will be performed for different purposes and in different manners by the interested researches.

The first picture of the gross domestic product's evolution, total and related to the number of inhabitants is presented below in rounded up figures.

Table Be

Evolution of the gross domestic product, in lei 1913, in dynamic and *per capita*, averages of the selected years, period 1862-1947

	1862-1866	**1911-1914**	**1920-1924**	**1935-1939**	**1940-1944**	**1945-1947**
1	**2**	**3**	**4**	**5**	**6**	**7**
Total gross domestic product, million lei	861	3363	5466	8508	5665	4045
Dynamics (%)	100	391	635	988	658	470
***per capita*, lei**	211	458	345	436	420	256
Dynamics(%)	100	217	162	207	199	121

Note: Based on Table B1

Romania's economic efforts resulted in a steady increase in the production of goods and services during half the century 1862-1914, a relatively peaceful period, of uninterrupted transformation and modernization, in contrast with the period of the next three decades 1915-1945, marked by two wars and economic crises, with negative impact for the economy. In the time interval until 1914, the total added value increased 3.9 times, and the GDP correlated with the population, which grew 1.8 times, increased 2.17 times per capita, respectively doubled based on a growth rate specific to agrarian economiesat the beginning of the transition towards agrarian-industrial structures.

What led to a significant economic progress in this half of century was not due to radical qualitative transformations in the structure of the productive forces of the country, besides the emergence of mechanized industry and transportation, nor of new qualitative models of labor organizing; the agriculture, with its foundations inherited from Cuza, with the big property and big cereal farms, with the agricultural undertakings burdensome for the peasants, drove the pace and structure of the entire economic-social evolution, under the effects of modernization, institutional and legislative westernization, as well as urban literacy.

The inter-war decades,[13] dragged by a post-war recovery period of 5-6 years and by the economic crisis, especially the agrarian one - 1929 - 1936 - registered an average increase per capita by 29%, the level of 207% reached in the average of the period 1935-1939, being of 96% compared to the pre-war period (217%), and this mainly due to the decline of agriculture.

The essential conclusion of these findings is that *the highest level of the GDP per capita*, of the 1934-1939 averages *was a few percentage points lower than that of the pre-war period*; it is more damaging taking into account that in the upstream there was a higher and a more qualitative potential than before the First World War. Thus, in the modern period of the country, the highest level of economic activities, expressed in the GDP indicator per capita, was recorded in the 1911-1914 averages. It cannot be denied that, during the inter-war

[13]After the national enthusiasm emerged by the unification of the country in 1918 it was exhausted and at the end of a destructive war, and especially due to the joy and hope of the peasants becoming owners, the ruling classes were faced with the following dilemma: what route would ensure progress after the disappearance of the big agricultural holdings that supported development for half a century. Different solutions were proposed and discussed starting from the existing sources: progress through the development of the peasants' production and even more, a peasant type of country as an expression of the predominant human potential - more than 80% of the population from the rural area. This did not prove to be feasible; small production does not have power to develop; it did not succeed anywhere around the world. The second modality, following the Western model, of industrialization was tempting and convincing. However the Romanian economists of that period, focusing more on the political and didactic activities, and supporters of projects did not make any calculations regarding the costs, required resources, funding, in order to promote a level of household profitability, or in order to promote the industrialization. Today, after nearly a century, when prognosis has become a fundamental science to forecast the future and necessary instrument for programming, starting from enterprises level up to the national level, no projects are developed without taking into account all the quantifiable resources and their efficiency. During the inter-war years, in accordance with the Romanian economic science, expressed through the opinions of certain important thinkers, with only a few exceptions, certain aspects were measured in regard to the need and efficiency of the national economy (see M. Manoilescu, Mitiţă Constantinescu); nevertheless they did not go any further. The Romanian economic science of the past, due to the fact it was eulogized and because of the patriotic feelings especially of the experts in economic doctrines during the second half of the 20th century, did not perform any analyses thoroughly quantified, neither regarding the national economic body, nor regarding its failures and solutions and achievable perspectives; it was the arena of opinions and disputes, where the subjective political class was too often present, directly or from the shadow. This was also expressed by the low number of Romanian economists like N. Georgescu Röegen, M. Manoilescu, Gr. Mladenatz being present in European economics.

decades more important technical and economic, cultural progresses were registered in almost all the fields - industry, constructions, science, art, education etc. Due to the causes presented above Romania was not able to capitalize better the human and natural resources of the country and at a higher level, in order to compensate at least the downtrend of agricultural production.

The main resources of the gross value added, from the national economy, per capita, display other aspects of the evolution of economic activities.

Table Bf

Gross value added[1] in the main sectors of the economy, *per capita* and in dynamic, averages of the selected years, period 1862-1947

	1862-1866	**1911-1914**	**1920-1924**	**1935-1939**	**1940-1944**	**1945-1947**
1	2	3	4	5	6	7
Value added in agriculture, forestry						
per capita, lei	111	157	130	144	114	71
dynamics, %	100	142	117	130	103	64
Value added in industry						
per capita, lei	33	98	57	100	111	83
dynamics, %	100	297	173	303	336	252
Value added in constructions						
per capita, lei	4	24	21	29	31	24
dynamics, %	100	600	525	725	775	600
Value added in services						
per capita, lei	60	160	119	151	150	74
dynamics, %	100	267	200	252	251	125

Note: [1] According to the data in Table B 19.

The value added per capita resulting from the agricultural animal and non-animal production was of 111 lei in the beginning interval up to 157 lei, the average of the period 1911-1914, the highest level of the entire period of 85 years. A decrease followed in the period 1945-1947, to 71 lei, much below the initial level of 1862-1886. In the industry, until 1914, the development is faster than in agriculture, approximately three times faster. At the end of the inter-war period it reaches the value of 100 lei, afterwards in the war period 111 lei per capita, and it declines to 89 lei per capita in 1947.

The constructions, directly related to the development of the infrastructures, urban habitat and the beginnings of industrialization, had the highest level of expansion: from 4 lei per capita in 1862-1866 up to 24 lei in the average of the interval 1911-1914, six times higher; the continuous development during the inter-war and war period was more than seven times higher than the initial level.

As regards the value added of the services, in the same context and determined by the transformation due to the modernization of the Romanian society until 1914, increased from 60 lei per capita to 160 lei per capita, 2.6 times, but during the inter-war decades it fell below the level of 1914;the services ended the negative evolution, only at half size of the previous interval.

After having presented the main aspects of potential and production of the national economy, we will present further the summary of statistical data related to the indicators of the period.

The statistical situations – tables – are classified in the reversed succession of the elaboration processes, from particular to general; therefore, they are arranged starting from those with a high level of synthesis - from the gross domestic product global indicator - to those detailed, by sectors, and branches of the equation components of macroeconomic synthesis indicators, in the series of the 1862-1947 period.

All the macroeconomic indicators are expressed, for the years 1862-1914 and 1920-1947, both in annual series as well as in 17 series of averages of 4-5 years; it is a more concentrated format of data, more expressive and more easily to perceive in dynamics and structure. The series of the averages of the years was driven, as shown, by the need to level the high increases and decreases, from one year to another, of the gross production of agriculture, generated by the climate conditions, from very good to very bad harvests; the value of the agricultural production, determinant for the value of national production, influenced all the agricultural upstream and downstream economic activities.

The macroeconomic indicators expressed in lei 1913 and comparable dollars are presented as a total amount, as well as per capita; the latter allows a more in depth analysis, as well as comparing the indicators and the related indexes during the entire 1862-1947 period, due to the fact that the modification of the territory and the country's population during the eight decades, through several changes of the borders, excludes the comparability of the global volume indicators.

The statistical situations presented in the section of final indicators were structured on groups, according to their level and aggregate structure; the *first group* includes global indicators, the gross and net domestic product, the total amount and per capita, in lei 1913 as benchmark, in USD PPP 1913, in USD 2000, as well as in indexes; the global indicators are presented in annual series and in series containing the averages of the years. The *second group* focuses on the indicators of the product tax and of the customs tax, of the subsidies operated to the gross value added in order to obtain the global indicators; the *third group* takes the calculations to a higher level of detail and focuses on the components and structure of the gross value added in the production of goods and services, afterwards in the production of goods by branches and in the production of services by branches, all these statistical situations being arranged on the 17 averages of the years. The *fourth group* includes the configuration of the indicators from the previous group, displayed in annual series during the period 1862-1947.

The *following group* presents the consumption of fixed capital, the depreciation, by branches of goods and services in the two temporal contexts: series of the averages of the years and annual series of the period. The *sixth group* of indicators presents the equation utilized in order to obtain the outcomes of the national economy: gross production, intermediary consumption and gross added value in the three structures: production of goods and services, production of goods by branches and production of services by branches, all classified in averages of the years. The statistics of the *following group* provide the indicators of the sixth group, in annual series of the time interval analyzed. The *last group*, besides the indicators of the equation - gross production, intermediary consumption and gross value added - also introduces the fixed capital consumption indicator - depreciation, presenting the indicators in the averages of the years and in annual series.

Thus, the structured pyramid of the macroeconomic synthesis indicators displays their positioning from the base in analytical stages up to its peak in the stages of global aggregation syntheses; they can ensure the study of evolution and structure of the Romanian economy under new aspects and with new conclusions regarding its progress in the researched century.

Table B 1

Gross domestic product, *total and per capita*[1], in lei 1913, in USD PPP 1913 and 2000, and indexes, averages of the years, 1862-1947

Averages of the years	GDP in lei 1913		GDP in million USD			GDP *per capita*, USD		
	total mil.	per capita lei	currency 1913	PPP 2000	indexes	currency 1913	PPP 2000	indexes
1	2	3	4	5	6	7	8	9
1862-1866	861	211	166	2261	100.0	41	554	100.0
1867-1871	967	228	187	2540	112.3	44	598	107.9
1872-1876	1114	254	215	2926	129.4	49	668	120.6
1877-1881	1330	293	257	3492	154.4	57	771	139.2
1882-1886	1594	327	308	4184	185.1	63	860	155.2
1887-1890	1819	349	351	4775	211.2	67	915	165.2
1891-1895	2126	387	410	5582	246.9	75	1015	183.2
1896-1900	2133	363	412	5599	247.6	70	954	172.2
1901-1905	2399	380	463	6298	278.5	73	998	180.1
1906-1910	2823	417	545	7411	327.8	80	1094	197.5
1911-1914	3363	458	649	8829	390.5	89	1203	217.1
1920-1924	5466	344	1055	14351	100.0	66	897	161.9
1925-1929	6995	411	1350	18365	128.0	79	1070	193.1
1930-1934	7398	408	1428	19424	135.3	78	1054	190.2
1935-1939	8508	436	1643	22338	155.7	84	1144	206.5
1940-1944	5665	420	1094	14873	103.6	81	1102	198.9
1945-1947	4045	256	781	10621	74.0	49	672	121.3

Sources: Calculated based on the data in Table B 2.

Note: [1] See notes 1, 2, and 3 of Table B 2.

Table B2

Gross domestic product, *total and per capita*[2], in USD PPP 1913 and 2000, and indexes, annual series, period 1862-1947

Averages of years	Total million USD			per capita[2], USD		
	currency 1913[1]	PPP 2000[1]	indexes	currency 1913	PPP 2000	indexes
1	2	3	4	5	7	8
1862	167	2264	100	41	563	100
1863	182	2479	109.5	45	613	108.9
1864	190	2577	113.8	46	630	111.9
1865	147	1997	88.2	36	483	85.8
1866	146	1987	87.8	36	483	85.8
1867	179	2430	107.3	43	585	103.9
1868	195	2652	117.1	46	631	112.1
1869	179	2429	107.3	42	571	101.4
1870	187	2539	112.1	44	592	105.2
1871	195	2648	117.0	45	611	108.5
1872	195	2652	117.1	45	611	108.5
1873	208	2823	124.7	48	649	115.3
1874	205	2784	123.0	47	639	113.5
1875	238	3237	143.0	54	736	130.7
1876	230	3132	138.3	52	705	125.2
1877	237	3227	142.5	53	721	128.1
1878	245	3331	147.1	55	743	132.0
1879	251	3414	150.8	55	754	133.9
1880	314	4264	188.3	69	938	166.6
1881	237	3225	142.4	51	698	124.0
1882	316	4296	189.8	67	917	162.9
1883	296	4030	178.0	62	843	149.7
1884	257	3494	154.3	53	718	127.5
1885	315	4281	189.1	64	864	153.5
1886	355	4821	212.9	70	956	169.8
1887	334	4542	200.6	65	889	157.9
1888	351	4778	211.0	68	923	163.9
1889	357	4854	214.4	68	923	163.9
1890	362	4926	217.6	68	926	164.5
1891	376	5118	226.1	70	949	168.6
1892	409	5564	245.8	75	1025	182.1
1893	400	5435	240.1	73	990	175.8
1894	432	5873	259.4	78	1059	188.1
1895	435	5920	261.5	77	1051	186.7
1896	451	6128	270.7	79	1073	190.6
1897	380	5161	228.0	66	891	158.1
1898	458	6223	274.9	78	1061	188.5
1899	323	4397	194.2	54	739	131.3
1900	448	6086	268.8	74	1006	178.7

Averages of years	Total million USD			per capita[2], USD		
	currency 1913[1]	PPP 2000[1]	indexes	currency 1913	PPP 2000	Indexes
1	2	3	4	5	6	7
1901	472	6412	283.2	77	1047	186.0
1902	463	6293	278.0	75	1016	180.5
1903	480	6523	288.1	76	1036	184.0
1904	375	5101	225.3	58	786	139.6
1905	527	7160	316.3	81	1106	196.4
1906	575	7817	345.3	87	1187	210.8
1907	471	6403	282.8	70	957	170.0
1908	513	6971	307.9	76	1030	182.9
1909	510	6935	306.3	74	1011	179.6
1910	657	8931	394.5	94	1283	227.9
1911	649	8825	389.8	92	1246	221.3
1912	668	9088	401.4	92	1257	223.3
1913	677	9211	406.8	92	1253	222.6
1914	602	8191	361.8	78	1054	187.2
1920	869	11825	522.3	56	762	135.1
1921	953	12961	572.5	61	824	146.3
1922	1076	14638	646.6	67	917	162.7
1923	1179	16039	708.4	73	990	175.7
1924	1198	16290	100.0[3]	73	991	175.8
1925	1225	16660	102.3	73	998	177.2
1926	1358	18472	113.4	80	1091	193.7
1927	1373	18671	114.6	80	1089	193.3
1928	1351	18372	112.8	78	1057	187.5
1929	1445	19651	120.6	82	1114	197.8
1930	1457	19811	121.6	81	1098	194.7
1931	1491	20272	124.4	82	1117	198.1
1932	1369	18623	114.3	74	1011	179.4
1933	1396	18980	116.5	75	1017	180.6
1934	1429	19433	119.3	76	1027	182.4
1935	1547	21039	129.2	81	1102	195.6
1936	1610	21892	134.4	83	1133	201.1
1937	1685	22909	140.6	86	1173	208.2
1938	1666	22654	139.1	84	1147	203.6
1939	1706	23196	142.4	86	1164	206.6
1940	1106	15038	92.3	83	1130	200.7
1941	1142	15533	95.4	86	1164	206.6
1942	1067	14513	89.1	79	1076	191.0
1943	1223	16631	102.1	90	1219	216.3
1944	930	12648	77.6	68	923	163.9
1945	725	9864	60.6	46	627	111.2
1946	709	9647	59.2	45	611	108.4
1947	908	12352	75.8	57	777	138.0

Source: Calculated based on Table B2, volume I, Victor Axenciuc, *Produsul intern brut al României, 1862-2000*, Ed. Economică, Bucharest, 2012.

Note: [1] GDP in RON 1913 was transformed in USD 1913 based on the ratio of metal parity gold of 5.18 lei = 1 USD. The 1913 USD were converted in USA GDP at the purchasing power parity, being 13.6 times that of the USD depreciation coefficient for the 1913-2000 period.

[2] The data per capita were obtained by dividing the GDP to the country's population from the series of the respective years.

[3] Calculated with a base=100 in 1924, the year when the inter-war recovery of the economy was concluded.

Methodological introduction
to the product taxes and custom taxes accounts

The value of the production of goods and services for the period 1862-1947 was generally expressed in basic prices of the producer; therefore at the end of the estimations it was necessary to calculate the product taxes.

The studies of the fiscal literature researched, during shorter or longer periods of time, the indirect taxes as the main source of revenue for the central public budget; in the local budgets the main revenues resulted from the direct, personal taxes; those for products and services represented by excise and others had a smaller share.

Depending on the historical period, the product taxes were related on an ever higher number of products that were consumed by means of sale; at the beginning of 1862-1871 period, the indirect taxes were for 10-12 products and in the fourth and fifth decade of the 21st century they reached more than 60 products and activities.

During the inter-war period, according to the new taxation systems, the product taxes were classified in a general way: taxes on alcohol, consumption tax, turnover, taxes on shows etc., expanding a lot the scope for products and services.

The indirect taxes increased their share in the budget revenues; in 1870 the ratio between the direct taxes and the indirect taxes was of 53.5/46.5; in 1902: 37.2/ 62.8; in 1927: 20.8/79.2; after an increase in the ration until 1930 of 32.7/67.3 the share of indirect taxes reached, in 1944, the level of 70.2% as compared to the level of 18.7% of the direct taxes and 11.1% of other taxes to the state budget.

In order to develop the 1862-1947 product taxes series, the statistical data on budgetary revenues were used especially the groups called indirect taxes. In the local budgets, the excises and other taxes were reproduced from other sources, but most of the data were calculated in accordance with the studies of the specialists, as share, of 3-6% in the indirect taxes of the central budget.

The customs taxes were estimated by following statistics on the external trade and fiscal information.

The amounts that we used, in all sources are expressed in current currency. We transformed them in a comparable currency, lei in the prices of 1913, by deflating with the general index of the prices with the base = 100 in 1913.

Summarized statistical data

Table B 3

Gross domestic product after operations on the gross value added, in lei 1913, annual series, in the period 1862-1947

Years	Gross value added million lei	Product taxes and customs taxes[1] million lei	Subsidies for products[2] million lei	Gross Domestic Product (2+3-4) million lei
1	**2**	**3**	**4**	**5**
1862	854.4	8.0	-	862.4
1863	935.7	8.6	-	944.3
1864	971.3	10.2	-	981.5
1865	748.1	12.4	-	760.5
1866	746.3	10.7	-	757.0
1867	911.7	14.1	-	925.8
1868	993.7	16.5	-	1010.2
1869	910.0	15.2	-	925.2
1870	954.6	12.5	-	967.1
1871	994.2	14.4	-	1008.6
1872	988.6	21.7	-	1010.3
1873	1053.2	22.0	-	1075.2
1874	1037.7	22.6	-	1060.3
1875	1211.4	21.7	-	1233.1
1876	1170.7	22.2	-	1192.9
1877	1204.1	24.9	-	1229.0
1878	1237.8	30.9	-	1268.7
1879	1270.3	29.7	-	1300.0
1880	1589.1	34.9	-	1624.0
1881	1188.3	39.7	-	1228.0
1882	1595.7	40.8	-	1636.5
1883	1487.8	46.9	-	1534.7
1884	1286.8	43.8	-	1330.6
1885	1580.6	50.0	-	1630.6
1886	1781.1	55.4	-	1836.5
1887	1669.5	61.7	1.0	1730.2
1888	1756.8	64.3	1.2	1819.9
1889	1785.5	64.7	1.6	1848.6
1890	1809.0	69.3	2.0	1876.3
1891	1867.7	83.5	2.2	1949.2
1892	2030.9	90.7	2.6	2119.0
1893	1959.5	113.5	3.1	2069.9
1894	2134.8	105.7	3.8	2236.7
1895	2152.9	106.6	4.4	2255.1
1896	2230.7	108.2	4.6	2334.3
1897	1862.8	107.5	4.6	1965.7
1898	2249.3	125.4	4.6	2370.1
1899	1589.2	90.6	5.0	1674.8
1900	2240.0	83.3	5.4	2317.9
1901	2346.1	101.9	5.9	2442.1

Years	Gross value added million lei	Product taxes and customs taxes[1] million lei	Subsidies for products[2] million lei	Gross Domestic Product 2+3-4 million lei
1	2	3	4	5
1902	2293.1	109.8	5.9	2397.0
1903	2389.3	102.4	7.6	2484.1
1904	1857.1	95.3	9.5	1942.9
1905	2627.1	111.9	11.5	2727.5
1906	2870.7	120.4	13.4	2977.7
1907	2314.0	140.2	15.7	2438.5
1908	2547.5	124.9	17.3	2655.1
1909	2539.1	121.5	19.2	2641.4
1910	3286.2	136.8	21.4	3401.6
1911	3266.0	118.9	23.8	3361.1
1912	3321.4	166.3	26.4	3461.3
1913	3361.4	175.7	28.8	3508.3
1914	2967.7	179.2	26.8	3120.1
1920	4315.2	192.0	2.9	4504.3
1921	4747.3	192.0	2.9	4936.4
1922	5296.7	281.6	3.0	5575.3
1923	5855.0	256.3	2.3	6109
1924	5887.5	318.7	1.8	6204.4
1925	6090.4	256.5	1.6	6345.4
1926	6738.7	298.5	1.7	7035.5
1927	6778.8	334.6	1.8	7111.6
1928	6754.9	244.6	1.9	6997.6
1929	7245.0	241.4	2.0	7484.4
1930	7297.6	250.6	2.4	7545.8
1931	7485.2	240.0	3.9	7721.3
1932	6800.5	294.3	1.7	7093.1
1933	6967.4	264.4	2.4	7229.4
1934	7168.9	235.5	2.7	7401.7
1935	7808.3	207.8	2.8	8013.3
1936	8103.9	236.4	2.2	8338.1
1937	8513.4	215.1	2.7	8725.8
1938	8381.2	251.7	4.4	8628.5
1939	8590.6	247.6	3.1	8835.1
1940	5536.1	192.4	0.9	5727.6
1941	5704.1	212.6	0.5	5916.2
1942	5361.1	166.5	0.3	5527.3
1943	6134.4	200.4	0.3	6334.5
1944	4722.9	94.8	0.1	4817.6
1945	3676.1	80.6	0.0	3756.7
1946	3629.8	44.6	0.0	3674.4
1947	4660.1	44.6	0.0	4704.7

Source: Based on the data from tables B4 and B5.

Note: **1.** See the Note of table B 4
2. See the Note of table B 5

Summarized statistical data

Table B 4

Product taxes[1] and customs taxes[2], in lei 1913, annual series, during the period 1862-1947

Years	Total col. 3+4+5 thousand lei	Tax per product in the central budget thousand lei	Taxes of consumption in the local budgets thousand lei	Customs taxes thousand lei
1	2	3	4	5
1862	7993	3235	97	4661
1863	8637	3647	109	4881
1864	10245	3720	112	6413
1865	12380	3802	114	8464
1866	10644	4042	121	6481
1867	14089	4631	139	9319
1868	16455	5996	180	10281
1869	15253	6120	184	8949
1870	12571	4507	135	7929
1871	14378	5111	153	9114
1872	21718	10702	321	10695
1873	21965	12958	389	8618
1874	22612	13443	403	8766
1875	21713	13708	411	7594
1876	22226	14105	423	7698
1877	24955	15244	457	9254
1878	30917	15583	467	14867
1879	29698	17814	534	11350
1880	34936	21914	657	12366
1881	39757	24713	741	14303
1882	40813	24395	732	15686
1883	46882	26581	797	19504
1884	43812	27253	818	15741
1885	50035	30972	929	18134
1886	55383	34617	1039	19727
1887	61800	36979	1109	23712
1888	64380	38742	1162	24476
1889	64724	38241	1147	25336
1890	69270	41906	1257	26107
1891	83650	48738	1950	32962
1892	90687	52042	2082	36563
1893	113400	62699	2508	48193
1894	105606	62256	2490	40860
1895	106531	61094	2444	42993
1896	108190	60709	2428	45053
1897	107434	64826	2593	40015
1898	125403	78982	3159	43261
1899	90500	61527	2461	26512

Years	Total col. (3+4+5) million lei	Taxes per product in the central budget million lei	Taxes of consumption in the local budgets million lei	Customs taxes million lei
1	2	3	4	5
1900	83308	59473	2379	21456
1901	101987	68160	2726	31101
1902	109796	74984	2999	31813
1903	102432	70194	2808	29432
1904	95327	65512	2620	27195
1905	111879	68154	2726	40999
1906	120437	73486	2939	44012
1907	140205	83465	3339	53401
1908	124924	71504	2860	50560
1909	121410	68798	2752	49860
1910	136774	73948	2958	59868
1911	118916	42251	1690	74975
1912	166375	94875	3795	67705
1913	175688	103969	4159	67560
1914	179144	131486	5259	42399

1920[4]	191978	84270	1685	106021
1921	191978	84270	1685	106021
1922	281598	75190	1504	204904
1923	256356	48533	971	206852
1924	318654	64471	1289	252894
1925	256537	57600	1152	197785
1926	298502	65450	1309	231742
1927	334522	91528	1831	241163
1928	244674	66136	1323	177215
1929	241433	88100	2643	150690
1930	250627	104321	3130	143176
1931	239957	133184	3996	102777
1932	294298	179641	5389	109268
1933	264391	174748	5242	84401
1934	235471	147574	2951	84946
1935	207753	147295	2946	57512
1936	236341	173497	3470	59374
1937	215049	160133	3203	51713
1938	251692	202812	4056	44824
1939	247606	194020	3880	49706
1940	192471	125544	2511	64416
1941	212588	121688	2434	88466
1942	166605	69747	1395	95463
1943	200378	105815	2116	92447
1944	94874	78457	1569	14848
1945	80628	32176	644	47808
1946	44646	32722	654	11270
1947	44646	32722	654	11270

Source: 1. Expunere de motive la bugetul general al statului, 1871-1948; *Enciclopedia României*, vol. IV, Bucureşti, 1943; Gh. M. Dobrovici, *Istoricul dezvoltării economice şi financiare a României, 1823-1934*, Bucureşti, 1934: Victor Axenciuc, *Evoluţia economică a României,* vol. III; M. Maevschi, *Contribuţii la istoria finanţelor publice ale României între cele două războaie mondiale*, Bucureşti, 1957; I. N. Stan, *Teoria generală a impozitelor indirecte*, Bucureşti, 1945; C.Tăutu, *Impozitele directe în România*, Bucureşti, 1939.

Note: 1. We included taxes on: salt, tobacco, matches, playing cards, sugar, oil, hunting powder, etc. until 1914; as of 1920 until 1947, the following were included in accordance with the official classification: taxes on alcoholic beverages, taxes on consumption, turnover, taxes per shows, other taxes. In certain years of the period, where data are missing, they were estimated by means of statistical methods.

2. Calculated at the value of imports and exports.

3. The excises were calculated as taxes on consumption, estimated by the specialists as a share of 3-6% in the value of the product tax to the state budget.

4. For 1920, due to the lack of data for the customs taxes we used the figure of the year 1921.

5. The data of 1946 were introduced.

Methodological introduction in the subsidies account

The economic subsidies, developed in different forms and practiced in various modalities by the state, focus on stimulating certain branches on a regular basis, in order to support their development for positive changes which are expected and to strengthen their resilience capacity in relation to the internal and external competition, or in certain cases of crisis, to save some companies facing with financial difficulties.

An important category of subsidies in the history of economic development in the last centuries refers to encourage the industry, especially the mechanized one; in different countries, for a longer period of time subsidies were promoted, with the purpose of foundation of the modern national industry, in order to be independent from the imports of equipment and machinery, consumer goods from the industrial countries previously developed. This is the way in which several countries like Germany, France etc. acted at the beginning of the 19th century, countries which initially depended on the imports of cars and industrial consumer goods from England.

On a larger geographical scale, continental and global, the domestic producers were encouraged in the 19th and 20th century in the agrarian countries, having a low level of development, to modify their economic structures by developing industries towards industrialization and economic independence.

After Romania became a state - 1859 - and acquired its political independence, it inaugurated, in the ninth decade of the 19th century, an economic policy to support the industry, policy which was applied during an entire century, 1887-1989.

Romania, in its economic policy, did not directly carry out subsidy actions for the private economy, except in rare situations and with low amounts; for example, the first action of this kind included stimulating the establishment of the sugar industry by granting the factories that were established under the law from 1882, 0.16 lei for each kg of sugar produced and 0.20 lei for each kg of exported sugar, while the price of sugar varied between 1-1.20 lei. Furthermore, two sugar factories, in Chitila andSascut, which incurred losses due to foreign competition, each received an amount of 230,000 lei in the conditions in which one kilogram of gold had a price of 3100 lei. Subsidies were not granted for agriculture, but indirectly, during the agrarian crisis in 1929-1936 and until 1939, premiums were granted in order to stimulate the export of wheat from the surplus production. Another form of subsidy, generated by the economic crisis of 1929-1933 was when the state took over the debt of agricultural debtors, which could no longer reimburse them to the banks and private companies or persons.

The indirect subsidy which had the longest duration in Romania was the one established by the laws encouraging the national industry in 1882 and 1912, granting certain financial and material advantages, to processing mechanized enterprises, for a period of 15-30 years, with the right to prolongation. The factories that could benefit from the advantages granted by these laws were required to fulfill certain criteria - to use the invested capital of minimum 50,000 lei and 24 workers (law of 1887), or the mechanical force of at least 5 horse power and 20 workers etc. (law of 1912). The benefits that they enjoyed after the law of 1887 were: exemption from paying any direct taxes to the state, county and commune; exemption from customs taxes for the import of equipment and machinery for the factory and for imports of raw materials necessary for the production process, which could not be found domestically; a reduction by 45% of the tariffs of CFR (Romanian railway company) for the transportation of the products of the company; granting to the Romanian entrepreneurs of 1-5 ha from the state or local administration lands, free of charge, to build the factory or in order to lease this surface to foreigners etc.

The Law of 1912, which was in force until 1947 stipulated the following: exemption from customs taxes for the machinery imported for the factory; exemption of taxes to the state, county and commune; discounts between 20-45% for the railway transportation fees; free of charge utilization of the hydraulic forces on the public domain; customs facilities for the factories using imported raw materials which were not produced domestically; priority for public supplies, even if during the tender procedure the offer of the domestic enterprise was more expensive by 5% than the offer of the foreign companies etc.

Additionally to these direct advantages, all the industrial enterprises obtained an increased probability and also due to the protectionist policy introduced by the laws in 1886, 1893, 1904, 1924, 1927 etc. which imposed high customs taxes for the import of processed industrial goods, taxes which had an initial level of 5-12% and reached, on average, 16-40% of the value of the goods; more severely the protectionism is manifested in the 30s and 40s, when different categories of goods were subject to contingency, limiting the quantity of imports. Thus, the domestic producer could benefit from higher prices for the goods sold on the domestic market, as compared to the prices of the imported goods, the difference being at least equal to the level of custom protection. All these advantages, subsidies, which were directly or indirectly supported by the state, could not quantified, estimated in lei due to the inherent difficulties, the lack of statistics and studies in the field developed by the Ministry of Finance and by the Ministry of Industry and Trade. The industrial advantages were fully obtained by the enterprises until 1914, until the First World War.

After the war, Romania's industrial configuration changes, including new branches, with other encouragement regimes, especially from Banat, Transilvania, and Bucovina. N. Arcadian, director in the Ministry of Industry and Trade during the inter-war period, in his paper published in 1936, Romania's Industrialization (Industrializarea României), analyzes the regime of encouraging the national industry in this period and reached the conclusion that, most of the provisions regarding the advantages granted by the law in 1912 "were abrogated by other laws, or were suspended, expired or were no longer in use" (page 301): "the reductions by 45% for the industrial transportations (Romanian Railways-CFR) were replaced by the local tariff for CFR of September 1930, which no longer favors the industry to the extent of the provisions of the 1912 law"; at the same time the provisions related to the exemption of taxes and charges" were abrogated through the law of direct contributions of 1923 and the amendments of 1932 and 1933". The author concludes the analysis in the following manner: "Therefore, from the benefits of the law the only ones left in force are the customs exemptions for the machinery, machinery parts and accessories which are not produced domestically and transportation reduction which the industry enjoys as tariffs for resorts" (page 302).

A reason for the reduction of advantages or support of the state for the industry is that its branch has developed in a consistent manner, accumulated important capitals and obtained a higher profitability, as it results from the published balance sheets; the encouragement laws, the advantages granted by the state in the mentioned half century - 1887-1938 - met their purpose; they stimulated the creation and development of a national industry that had in 1938 a contribution of approximately 40% to the social product and 31% to the national income and covered approximately 80% of the internal demand for consumer goods.

All the benefits which resulted from the encouragement laws finally represented a way of subsidy from the state, consisting of significant amounts, which in the methodology of national accounts must be subtracted from the gross value added.

In order to quantify these subsidies we used an indirect path to estimate the currency expressed in lei. This is based on the information provided by the explanatory statement to the encouragement law of 1912. Its authors present, according to the statistical data provided by the factories, the commercial balance sheet and the profit and loss account of the industry, in order to calculate its return, in two assumptions, encouraged and not-encouraged. The data show that, when the working capital is not due, the annual average benefit, as compared to the entire capital - fixed and working - would be of 7.70. For our estimations, we calculated the size of the benefit, in thousand lei, in relation to the invested capital of the encouraged industry, and then we compared the profit to the value of production, indicators that we obtained from other sources and calculations for the 1887-1947 period.

Thus, it results that the profit represents on an annual average 14.2% of the value of the industrial production when encouraged, and only 6.3% when not encouraged. Therefore, the advantages of stimulation, namely the subsidies of the state in different forms, would represent 7.9% of the value of production.

Of course, the profitability was also influenced by other factors - market, prices, climate for the agricultural raw materials etc. If we accept that, for the long term, the variations of several factors are balanced, under the assumption of an additional profit of 7.9%, we can estimate the magnitude of advantages for the period that is analyzed. As shown by N. Arcadian, during the inter-war period, the advantages included in the encouragement law were reduced little by little until 1935, when they were fewer. Therefore, in our opinion, in what concerns the inter-war period, in accordance with the calculations of the data included in the balance sheet of the joint stock companies - 1922-1941- we have reduced the initial share - before 1914 - of 7.9% additional profit, to the value of production, to 6.9%, in the period 1924-1930 and to 4.1% in the period 1931-1947. Using these percentages we estimated the hypothetical value of advantages, respectively of the subsidies granted by the state to the industry,

Another important category of economic subsidizing concerned the premiums granted for the exports of wheat in the fourth decade of the 20th century, in order to incentivize the sale of wheat on the external markets and reduce the internal stocks. The reduction up to 50% of the price of grains on the European market during the inter-war agrarian crisis, 1929-1936, made things difficult for Romanian exporters, as well as for the producers-peasants. The intervention of the state to grant premiums increased the price of wheat in the appropriate manner, improving the return of the wheat crops. The premiums for wheat exports were modified on an annual basis, depending on the production surplus, the price of the external markets and the need for foreign currency of the country. In total, the eight big campaigns for exporting wheat, with premiums or by buying the product and exporting it, indirectly subsidized the trade and agriculture with 226 million lei, 1913 currency.

The value of the encouraged industrial production for which the benefits granted by the state were calculated, as well as the premiums for the wheat exports are expressed in current prices lei. In order to transform the data from current prices to the prices of 1913, the amount of the industrial subsidies were deflated by the index of the industrial prices with the base = 100 in 1913, and the value of the wheat premiums was deflated by the agricultural price index having the same base.

Summarized statistical data

Table B 5

Subsidies granted by the state for industry and wheat export, in lei 1913, annual series, period 1887-1947

Years	Total subsidies thousand lei	Value of the industrial advantages thousand lei	Value of the subsidies for wheat exports[2] thousand lei	Years	Total subsidies thousand lei	Value of industrial advantages[1] thousand lei	Value of the subsidies for wheat exports[2] thousand lei
1	2	3	4	1	2	3	4
1887	**907**	907	-	**1920**	**31370**	31370	-
1888	**1120**	1120	-	**1921**	**41545**	41545	-
1889	**1490**	1490	-	**1922**	**58124**	58124	-
1890	**1794**	1794	-	**1923**	**64719**	64719	-
1891	**1912**	1912	-	**1924**	**57101**	57101	-
1892	**2132**	2132	-	**1925**	**60010**	60010	-
1893	**2356**	2356	-	**1926**	**65903**	65903	-
1894	**2787**	2787	-	**1927**	**68964**	68964	-
1895	**3133**	3133	-	**1928**	**75623**	75623	-
1896	**3428**	3428	-	**1929**	**76542**	76542	-
1897	**3603**	3603	-	**1930**	**73557**	73557	-
1898	**3788**	3788	-	**1931**	**152187**	94385	57802
1899	**4199**	4199	-	**1932**	**39186**	39186	-
1900	**4479**	4479	-	**1933**	**59229**	52708	6521
1901	**4785**	4785	-	**1934**	**63455**	56934	6521
1902	**4873**	4873	-	**1935**	**78257**	65381	12876
1903	**6451**	6451	-	**1936**	**59299**	56533	2766
1904	**8213**	8213	-	**1937**	**98801**	77894	20907
1905	**10162**	10162	-	**1938**	**199126**	128654	70472
1906	**12263**	12263	-	**1939**	**152888**	104831	48057

1907	**14571**	14571	-	**1940**	**43669**	43669	-
1908	**16605**	16605	-	**1941**	**41108**	41108	-
1909	**18713**	18713	-	**1942**	**41406**	41406	-
1910	**20790**	20790	-	**1943**	**46272**	46272	-
1911	**23229**	23229	-	**1944**	**27021**	27021	-
1912	**25881**	25881	-	**1945**	**30308**	30308	-
1913	**28467**	28467	-	**1946**	**30991**	30991	-
1914	**26775**	26775	-	**1947**	**31674**	31674	-
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Source: *The statistics of the Romanian foreign trade, 1910-1914*; N. Arcadian, *Industrializarea României*, Bucureşti, 1936; Olga Constantinescu, N. N. Constantinescu, *Regarding the industrial revolution in Romania*, 1957; I. I. Tatos, *Tehnica operaţiunilor cu cereale*, Bucureşti, 1944; Victor Axenciuc, vol. III, *Monedă-Credit-Comerţ-Finanţe publice*, Bucureşti, 2000.

Note: **1.** Subsidies which derive from the law for encouraging industry.

2. Export premiums were granted during the agrarian crisis and until 1939.

Summarized statistical data **Table B 6**

Gross value added in the production of goods and services and structure, averages of the years, period 1862-1947

Averages Of the years	Total value added		Gross value added in the production of of goods		Gross value added in the production of services	
	million lei	%	million lei	%	million lei	%
1	2	3	4	5	6	7
1862-1866	852	100	608	71.1	244	28.9
1867-1871	953	100	717	75.3	236	24.7
1872-1876	1092	100	802	73.3	290	26.7
1877-1881	1298	100	912	69.9	386	30.1
1882-1886	1546	100	1084	69.9	462	30.1
1887-1890	1755	100	1242	70.8	513	29.2
1891-1895	2029	100	1402	69.0	627	31.0
1896-1900	2034	100	1363	66.6	671	33.4
1901-1905	2303	100	1543	66.8	760	33.2
1906-1910	2712	100	1769	65.0	943	35.0
1911-1914	3229	100	2055	63.6	1174	36.4
....						
1920-1924	5220	100	3314	63.5	1906	36.5
1925-1929	6722	100	4253	63.3	2469	36.7
1930-1934	7144	100	4512	63.2	2632	36.8
1935-1939	8280	100	5341	64.5	2939	35.5
1940-1944	5492	100	3468	63.3	2024	36.7
1945-1947	3989	100	2814	70.3	1175	29.7

Note: Calculated based on the data in Table B7

Summarized statistical data **Table B 7**

Gross value added in the production of goods and services[1], in lei 1913, annual series, period 1862-1947

Years	Total value added		Gross value added in the production of goods		Gross value added in the production of services	
	million lei	%	million lei	%	million lei	%
1	2	3	4	5	6	7
1862	854	100	623	72.9	231	27.1
1863	936	100	694	74.2	242	25.8
1864	971	100	706	72.7	265	27.3
1865	748	100	506	67.6	242	32.4
1866	746	100	509	68.2	237	31.8
1867	912	100	677	74.2	235	25.8
1868	994	100	718	72.3	276	27.7
1869	979	100	714	78.5	265	21.5
1870	1024	100	754	79.0	270	21.0
1871	994	100	720	72.4	274	27.6
1872	989	100	714	72.2	275	27.8
1873	1053	100	772	73.3	281	26.7
1874	1038	100	757	72.9	281	27.1
1875	1211	100	923	76.2	288	23.8
1876	1171	100	844	72.1	327	27.9
1877	1204	100	835	69.3	369	30.7
1878	1238	100	846	68.4	392	31.6
1879	1270	100	893	70.3	377	29.7
1880	1589	100	1195	75.2	394	24.8
1881	1188	100	789	66.4	399	33.6
1882	1596	100	1167	73.2	429	26.8
1883	1488	100	1024	68.8	464	31.2
1884	1287	100	849	66.0	438	34.0
1885	1581	100	1099	69.6	482	30.4
1886	1781	100	1281	71.9	500	28.1
1887	1670	100	1159	69.4	511	30.6
1888	1757	100	1272	72.4	485	27.6
1889	1786	100	1271	71.2	515	28.8
1890	1809	100	1267	70.1	542	29.9
1891	1868	100	1266	67.8	602	32.2
1892	2031	100	1429	70.4	602	29.6
1893	1960	100	1312	67.0	648	33.0
1894	2135	100	1484	69.5	651	30.5
1895	2153	100	1516	70.4	637	29.6
1896	2231	100	1547	69.3	684	30.7
1897	1863	100	1204	64.7	659	35.3
1898	2249	100	1534	68.2	715	31.8
1899	1589	100	968	60.9	621	39.1
1900	2240	100	1564	69.8	676	30.2
1901	2346	100	1613	68.8	733	31.2

Years	Total value added		Gross value added in the production of goods		Gross value added in the production of services	
	million lei	%	million lei	%	million lei	%
1	2	3	4	5	6	7
1902	2293	100	1548	67.5	745	32.5
1903	2389	100	1633	68.3	756	31.7
1904	1857	100	1149	61.9	708	38.1
1905	2627	100	1773	67.5	854	32.5
1906	2871	100	1960	68.3	911	31.7
1907	2314	100	1440	62.2	874	37.8
1908	2548	100	1648	64.7	900	35.3
1909	2539	100	1596	62.8	943	37.2
1910	3286	100	2203	67.0	1083	33.0
1911	3266	100	2087	63.9	1179	36.1
1912	3321	100	2123	63.9	1198	36.1
1913	3361	100	2165	64.4	1196	35.6
1914	2968	100	1844	62.1	1124	37.9
1920	4315	100	2792	64.7	1523	35.3
1921	4747	100	2914	61.4	1833	38.6
1922	5297	100	3427	64.7	1870	35.3
1923	5855	100	3765	64.3	2090	35.7
1924	5888	100	3672	62.4	2216	37.6
1925	6090	100	3936	64.6	2154	35.4
1926	6739	100	4305	63.9	2434	36.1
1927	6779	100	4182	61.7	2597	38.3
1928	6755	100	4214	62.4	2541	37.6
1929	7245	100	4625	63.8	2620	36.2
1930	7298	100	4527	62.0	2771	38.0
1931	7485	100	4676	62.5	2809	37.5
1932	6801	100	4270	62.8	2531	37.2
1933	6967	100	4509	64.7	2458	35.3
1934	7169	100	4576	63.8	2593	36.2
1935	7808	100	5008	64.1	2800	35.9
1936	8104	100	5189	64.0	2915	36.0
1937	8513	100	5445	64.0	3068	36.0
1938	8381	100	5451	65.0	2930	35.0
1939	8591	100	5611	65.3	2980	34.7
1940	5536	100	3492	63.1	2044	36.9
1941	5704	100	3524	61.8	2180	38.2
1942	5361	100	3202	59.7	2159	40.3
1943	6134	100	3908	63.7	2226	36.3
1944	4723	100	3214	68.1	1509	31.9
1945	3676	100	2552	69.4	1124	30.6
1946	3630	100	2494	68.7	1136	31.3
1947	4660	100	3395	72.9	1265	27.1

Note: Calculated based on tables B 9 and B 11.

Summarized statistical data

Table B 8

Gross value added in the production of goods, by branches, in lei 1913, and structure, averages of the years, 1862-1947

Averages of the years	Total		Agriculture and others		Industry		Constructions	
	million lei	%	million lei	%	million lei	%	million lei	%
1	2	3	4	5	6	7	8	9
1862-1866	608	100	454	74.0	136	23.0	18	3.0
1867-1871	717	100	544	75.9	142	19.8	31	4.3
1872-1876	802	100	580	72.2	176	22.0	46	5.7
1877-1881	912	100	661	72.1	211	23.5	40	4.5
1882-1886	1084	100	787	72.2	234	21.9	63	5.9
1887-1890	1242	100	862	69.3	288	23.1	92	7.6
1891-1895	1402	100	959	68.4	358	25.5	85	6.1
1896-1900	1363	100	867	62.6	387	29.2	109	8.2
1901-1905	1543	100	1042	66.9	399	26.4	102	6.7
1906-1910	1769	100	1050	58.6	568	32.7	151	8.7
1911-1914	2055	100	1155	56.0	724	35.3	176	8.6
....								
1920-1924	3314	100	2077	62.9	908	27.1	329	10.0
1925-1929	4252	100	2428	57.1	1372	32.3	452	10.6
1930-1934	4512	100	2553	56.6	1510	33.5	449	10.0
1935-1939	5341	100	2816	52.7	1952	36.5	573	10.7
1940-1944	3468	100	1544	44.5	1504	43.4	420	12.1
1945-1947	2814	100	1126	39.2	1312	47.4	376	13.5

Source: Calculated based on the data in Table B 9.

Summarized statistical data **Table B 9**

Gross value added in the production of goods, by branches, in lei 1913, and structure, averages of the years, period 1862-1947

Years	Total		Agriculture and others		Industry		Constructions	
	million lei	%	million lei	%	million lei	%	million lei	%
1	2	3	4	5	6	7	8	9
1862	**623**	100	467	74.9	141	22.6	15	2.6
1863	**694**	100	553	79.6	125	18.1	16	2.3
1864	**706**	100	568	80.4	121	17.1	17	2.5
1865	**506**	100	352	69.7	134	26.5	20	3.8
1866	**509**	100	333	65.4	157	30.8	19	3.8
1867	**677**	100	519	76.7	137	20.3	21	3.0
1868	**718**	100	541	75.3	156	21.8	21	2.9
1869	**714**	100	528	73.9	137	19.2	49	6.9
1870	**754**	100	575	76.2	146	19.4	33	4.4
1871	**720**	100	557	77.4	133	18.4	30	4.1
1872	**714**	100	498	69.7	163	22.8	53	7.5
1873	**772**	100	559	72.5	160	20.8	53	6.7
1874	**757**	100	531	70.1	197	26.0	29	3.9
1875	**924**	100	677	73.3	190	20.5	57	6.2
1876	**844**	100	638	75.6	169	20.0	37	4.5
1877	**835**	100	610	73.1	187	22.4	38	4.5
1878	**846**	100	630	74.4	176	20.8	40	4.8
1879	**893**	100	626	70.1	231	25.8	36	4.0
1880	**1195**	100	920	77	235	19.7	40	3.3
1881	**789**	100	519	65.8	226	28.6	44	5.6
1882	**1167**	100	906	77.6	205	17.6	56	4.8
1883	**1024**	100	715	69.8	247	24.1	62	6.0
1884	**849**	100	566	66.6	227	26.8	56	6.6
1885	**1099**	100	801	72.9	233	21.2	65	6.0
1886	**1281**	100	947	74.0	257	20.0	77	6.0
1887	**1159**	100	778	67.1	243	20.9	138	12.0
1888	**1272**	100	903	71.0	285	22.4	84	6.6
1889	**1271**	100	894	70.4	311	24.4	66	5.2
1890	**1267**	100	873	68.9	313	24.7	81	6.5
1891	**1266**	100	829	65.5	339	26.7	98	7.8
1892	**1429**	100	998	69.8	353	24.7	78	5.5
1893	**1312**	100	916	69.8	324	24.7	72	5.5
1894	**1484**	100	1027	69.2	377	25.4	80	5.4
1895	**1516**	100	1028	67.8	395	26.1	93	6.2
1896	**1547**	100	1013	65.5	417	26.9	117	7.6
1897	**1204**	100	774	64.2	338	28.1	92	7.7
1898	**1534**	100	1017	66.3	390	25.4	127	8.3
1899	**968**	100	481	49.8	376	38.9	111	11.4
1900	**1564**	100	1052	67.3	416	26.6	96	6.1
1901	**1613**	100	1175	72.9	341	21.1	97	6.0
1902	**1548**	100	1070	69.1	380	24.5	98	6.4

Years	Total		Agriculture and others		Industry		Constructions	
	million lei	%	million lei	%	million lei	%	million lei	%
1	2	3	4	5	6	7	8	9
1903	**1633**	100	1124	68.9	405	24.8	104	6.3
1904	**1149**	100	640	55.7	409	35.6	100	8.7
1905	**1773**	100	1202	67.8	462	26.1	109	6.2
1906	**1960**	100	1318	67.2	503	25.7	139	7.1
1907	**1440**	100	748	52.0	536	37.2	156	10.8
1908	**1648**	100	905	54.9	601	36.4	142	8.6
1909	**1596**	100	890	55.8	574	36.0	132	8.3
1910	**2203**	100	1390	63.1	624	28.3	189	8.6
1911	**2087**	100	1257	60.2	676	32.4	154	7.4
1912	**2123**	100	1187	55.9	759	35.8	177	8.3
1913	**2165**	100	1232	56.9	742	34.3	191	8.8
1914	**1844**	100	942	51.1	717	38.9	185	10.0
......								
1920	**2792**	100	1853	66.4	656	23.5	283	10.2
1921	**2914**	100	1839	63.1	765	26.3	310	10.6
1922	**3427**	100	2181	63.6	898	26.2	348	10.2
1923	**3765**	100	2373	63	1044	27.7	348	9.2
1924	**3672**	100	2140	58.3	1177	32.1	355	9.7
1925	**3936**	100	2275	57.8	1251	31.8	410	10.4
1926	**4305**	100	2583	60	1284	29.8	438	10.2
1927	**4182**	100	2299	55	1397	33.4	486	11.6
1928	**4214**	100	2244	53.3	1507	35.8	463	11.0
1929	**4625**	100	2740	59.2	1423	30.8	462	10.0
1930	**4527**	100	2673	59	1454	32.1	400	8.8
1931	**4676**	100	2778	59.4	1441	30.8	457	9.8
1932	**4270**	100	2412	56.5	1423	33.3	435	10.2
1933	**4509**	100	2543	56.4	1506	33.4	460	10.2
1934	**4576**	100	2356	51.5	1727	37.7	493	10.8
1935	**5008**	100	2637	52.7	1828	36.5	543	10.9
1936	**5189**	100	2764	53.3	1867	36	558	10.8
1937	**5445**	100	2775	51	2020	37.1	650	11.9
1938	**5451**	100	2871	52.7	2032	37.3	548	10.1
1939	**5611**	100	3031	54	2012	35.9	568	10.1
1940	**3492**	100	1594	45.6	1541	44.1	357	10.2
1941	**3524**	100	1586	45	1528	43.3	410	11.6
1942	**3202**	100	1252	39.1	1535	47.9	415	13.0
1943	**3908**	100	1739	44.5	1665	42.6	504	12.9
1944	**3214**	100	1547	48.1	1249	38.9	418	13
1945	**2552**	100	901	35.3	1304	51.1	347	13.6
1946	**2494**	100	865	34.7	1263	50.6	366	14.7
1947	**3395**	100	1613	47.5	1371	40.4	411	12.1

Source: Indicators calculated based on the data from sections 1, 2, 3, Volume II, 2012 edition.

Table B 10

Gross value added in the services[1], by branches, in lei 1913, and structure, averages of the years, 1862-1947

Averages of the years	Total		Transportation, communications		Trade		Financial services insurance		Administration army Education, culture, health		Liberal professions		Employed household personnel		Real estate transactions others	
	mill. lei	%	mill. lei	%	mill. lei	%	mill. lei	%	mill. lei	%	mill. lei	%	mill. lei	%	mill. lei	%
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1862-1866	244	100	62	25.4	122	49.8	0.1	0.0	29	11.8	1	0.4	20	8.0	10	4.6
1867-1871	264	100	65	24.8	136	51.4	0.6	0.2	27	10.3	1	0.5	21	7.8	13	5.0
1872-1876	290	100	69	23.8	156	53.5	0.4	0.1	27	9.3	2	0.7	21	7.4	15	5.4
1877-1881	386	100	82	21.3	227	58.7	0.9	0.2	33	8.6	3	0.7	23	5.8	17	4.7
1882-1886	462	100	90	19.4	270	58.4	4	0.8	49	10.7	4	0.8	24	5.2	21	4.7
1887-1890	513	100	107	20.8	270	52.6	7	1.3	73	14.2	6	1.1	26	5.1	24	4.9
1891-1895	628	100	116	18.6	344	54.7	16	2.5	86	13.7	8	1.3	28	4.4	30	4.8
1896-1900	671	100	130	19.3	342	50.9	23	3.4	99	14.8	11	1.6	31	4.6	35	5.5
1901-1905	760	100	154	20.3	387	50.9	26	3.4	98	12.9	15	1.9	34	4.5	46	6.0
1906-1910	942	100	170	18.1	493	52.4	34	3.6	131	13.9	19	2.0	37	3.9	58	6.1
1911-1914	1174	100	196	16.7	613	52.1	67	5.7	168	14.3	23	1.9	39	3.3	68	5.9
………																
1920-1924	1906	100	264	13.9	1049	54.8	140	7.4	168	8.9	87	4.6	70	3.7	128	6.8
1925-1929	2487	100	447	17.9	1158	46.7	203	8.1	324	12.9	116	4.7	74	3.0	165	6.7
1930-1934	2632	100	497	18.9	851	32.3	125	4.7	769	29.3	121	4.6	64	2.4	205	7.8
1935-1939	2939	100	451	15.4	1145	38.9	87	3.0	832	28.3	125	4.3	60	2.0	239	8.1
1940-1944	2024	100	344	17.1	549	27.2	36	1.8	786	38.4	84	4.2	39	2.0	186	9.4
1945-1947	1175	100	340	28.9	354	30.1	11	0.9	152	13.0	32	2.7	37	3.2	249	21.3

Source: [1]Calculated based on the data in table B 11.

Table B 11

Gross value added in the services[1], by branches, in lei 1913, annual series, 1862-1947

Years	Total million lei	Transportation, communications million lei	Trade million lei	Financial services, insurances million lei	Administration, army, education culture, health million lei	Liberal professions million lei	Employed household personnel million lei	Real estate transactions others million lei
1	2	3	4	5	6	7	8	9
1862	231.2	60.2	114.4	-	26.3	0.7	19.1	10.5
1863	241.4	61.0	124.0	-	25.5	0.8	19.3	10.8
1864	265.3	61.7	139.9	-	32.1	0.9	19.5	11.2
1865	242.6	62.2	116.0	-	32.2	1.0	19.8	11.4
1866	237.1	63.2	113.2	0.33	27.7	1.0	19.7	11.9
1867	235.0	63.4	114.3	0.38	23.5	1.1	19.9	12.3
1868	275.8	64.3	147.4	0.59	29.3	1.2	20.2	12.8
1869	264.9	65.5	135.4	0.6	28.4	1.3	20.5	13.2
1870	269.8	66.5	140.1	0.58	26.9	1.4	20.7	13.6
1871	274.3	67.0	142.3	0.66	27.7	1.6	21.1	14.0
1872	274.5	67.6	143.2	0.35	26.1	1.7	21.1	14.5
1873	281.7	71.2	144.7	0.3	27.6	1.8	21.1	15.0
1874	280.9	67.3	147.9	0.49	26.6	1.9	21.2	15.5
1875	287.9	68.1	152.1	0.39	27.8	2.0	21.4	16.0
1876	327.1	69.7	190.9	0.24	25.8	2.2	21.7	16.6
1877	369.3	91.8	205.1	0.21	30.1	2.3	23.1	16.7
1878	391.4	84.7	225.7	0.94	38.0	2.4	22.0	17.6
1879	377.7	77.4	226.7	0.51	30.0	2.6	22.2	18.3
1880	393.7	77.4	240.2	0.16	31.9	2.7	22.3	19.0
1881	399.1	79.9	236.0	2.61	35.4	2.9	22.8	19.5
1882	428.4	85.1	255.7	2.35	38.9	3.0	23.1	20.2
1883	463.6	89.6	273.6	4.01	48.5	3.4	23.6	20.9
1884	437.6	89.1	246.7	4.02	48.3	3.7	24.1	21.6
1885	481.3	91.2	278.0	4.38	57.0	4.1	24.6	22.0
1886	500.0	93.0	295.8	4.61	54.2	4.5	25.1	22.8
1887	510.5	98.2	252.6	5.16	100.3	5.0	25.4	23.9
1888	484.8	102.8	260.8	5.07	60.1	5.4	25.8	24.8
1889	515.0	111.2	285.9	4.77	55.2	5.9	26.3	25.7
1890	541.6	115.6	279.4	11.2	75.7	6.4	26.6	26.7
1891	602.2	121.4	319.9	12.0	87.0	6.9	27.1	27.9
1892	601.9	113.9	326.4	13.4	84.5	7.4	27.3	29.0
1893	647.5	118.0	375.4	14.5	73.7	7.9	27.6	30.4
1894	650.5	114.6	358.1	19.0	91.3	8.5	28.0	31.0
1895	636.6	113.9	339.7	18.8	94.3	9.1	28.5	32.3
1896	683.8	121.1	367.3	19.2	103.9	9.7	28.9	33.8
1897	658.5	122.4	335.8	22.1	103.4	10.3	29.4	35.1
1898	715.6	137.1	379.3	23.3	98.7	10.9	29.8	36.5
1899	621.7	127.4	294.4	23.8	94.5	11.6	32.1	37.9
1900	676.3	139.4	333.3	23.9	95.0	12.3	32.6	39.8
1901	733.1	150.8	375.8	24.9	93.8	13.0	33.1	41.7
1902	745.3	154.0	384.1	25.8	90.5	13.7	33.5	43.7
1903	756.8	156.6	384.0	24.8	97.2	14.4	34.1	45.7
1904	708.3	145.1	346.2	24.4	94.5	15.2	35.3	47.6

Years	Total million lei	Transportation, communications million lei	Trade million lei	Financial services, insurances million lei	Administration, army, education culture, health million lei	Liberal professions million lei	Employed household personnel million lei	Real estate transactions others million lei
1	2	3	4	5	6	7	8	9
1905	854.6	164.6	446.6	28.5	113.7	16.0	35.3	49.9
1906	910.4	168.3	495.6	28.0	113.6	16.8	35.9	52.2
1907	874.1	139.5	481.6	33.4	111.1	17.6	36.4	54.5
1908	899.5	171.7	449.6	33.9	131.8	18.5	36.9	57.1
1909	943.5	181.2	469.3	35.2	141.2	19.5	37.4	59.7
1910	1083.5	191.8	570.7	41.2	159.1	20.4	38	62.4
1911	1178.9	205.5	638.8	51.3	158.2	21.4	38.6	65.2
1912	1198.2	200.5	640.8	62.4	164.8	22.3	39.3	68.1
1913	1195.7	185.8	635.7	71.3	169.0	23.3	39.5	71.1
1914	1123.7	190.3	535.8	81.2	178.2	24.2	39.7	74.3
……								
1920	1523	225.0	775.5	128.7	143.0	69.9	63.7	117.2
1921	1833.8	262.7	989.2	130.4	184.8	78.1	67.3	121.3
1922	1869.3	267.0	1025.6	140.2	154.4	86.8	68.8	126.5
1923	2090.1	260.0	1202.7	146.3	172.3	95.9	79.3	133.6
1924	2215.7	304.6	1251.7	153.5	187.0	105.4	71.9	141.6
1925	2154.7	364.8	1064.2	162.3	225.9	115.4	73.6	148.7
1926	2433.3	396.6	1205.3	193.2	291.2	115.7	75.2	156.1
1927	2687.0	549.1	1216.1	212.0	355.8	116.0	73.5	164.5
1928	2540.5	454.8	1142.1	215.3	363.8	116.4	74.2	173.9
1929	2620.1	468.5	1160.2	233.5	383.1	116.7	73.4	184.7
1930	2770.9	521.5	929.1	257.0	680.0	118.2	71.0	194.1
1931	2809.4	535.9	880.5	138.4	867.7	119.8	68.1	199.0
1932	2530.5	534.6	795.0	89.8	720.9	121.4	64.7	204.1
1933	2458.8	458.3	789.6	69.6	747.8	123.0	60.5	210.0
1934	2592.6	434.7	862.7	69.4	830.0	124.6	54.9	216.3
1935	2800.3	460.1	1021.6	74.8	839.5	126.1	55.0	223.2
1936	2915.1	441.0	1108.2	92.6	857.7	127.7	55.2	232.7
1937	3068.2	455.4	1281.8	89.4	813.0	129.3	58.3	241.0
1938	2930.1	467.2	1166.3	93.0	757.7	130.9	66.0	249.0
1939	2979.6	430.9	1146.9	85.8	891.7	111.9	66.0	246.4
1940	2044.6	359.6	635.8	56.7	689.7	94.2	39.0	169.6
1941	2180.3	399.2	572.8	32.2	871.0	89.4	38.8	176.9
1942	2158.8	371.1	559.0	31.9	889.3	84.6	37.3	185.6
1943	2226.5	310.4	572.0	36.3	992.9	79.7	39.9	195.3
1944	1508.7	281.4	404.6	24.0	487.2	71.3	38.9	201.3
1945	1124.0	317.7	304.5	11.6	173.7	37.3	40.0	239.2
1946	1135.8	323.7	352.5	10.0	131.8	31.6	37.1	249.1
1947	1264.7	377.1	405.7	10.0	150.7	25.8	33.7	261.7

Source: [1] Calculated based on the data from chapters 4-10, Volume II, 2012 edition.

Summarized statistical data **Table B12**

Fixed capital consumption[1], in the production of goods by branches and in the production of services, in lei 1913, averages of the years, period 1862-1947

Averages of the years	Total general col. 3+7 million lei	Fixed capital consumption in the production of				
		goods				services
		Total col. 4+5+6 million lei	agriculture million lei	industry million lei	constructions million lei	million lei
1	2	3	4	5	6	7
1862-1866	28.0	16.3	12.4	3.8	0.1	11.7
1867-1871	31.5	19.0	14.9	3.9	0.2	12.5
1872-1876	37.5	24.5	19.0	5.2	0.3	13.0
1877-1881	43.5	28.3	21.1	6.9	0.3	15.3
1882-1886	48.2	31.0	22.7	7.8	0.5	17.2
1887-1890	56.3	36.2	24.8	10.8	0.6	20.1
1891-1895	69.9	46.3	28.7	16.9	0.7	23.6
1896-1900	81.7	56.1	35.4	19.9	0.8	25.6
1901-1905	97.3	67.2	41.2	24.6	1.4	30.1
1906-1910	121.5	85.8	45.1	37.1	3.6	35.6
1911-1914	176.4	132.7	51.0	74.2	7.5	43.7
....						
1920-1924	267.0	179.3	83.5	83.3	12.5	87.7
1925-1929	397.0	271.5	101.5	147.0	23.0	125.5
1930-1934	451.3	326.6	79.9	219.2	27.5	124.7
1935-1939	597.1	453.1	127.3	284.7	41.1	144.0
1940-1944	471.3	365.1	69.7	245.3	50.1	106.2
1945-1947	430.8	346.9	63.7	235.4	47.8	84.0

Source: [1] Calculated based on the data in Table B13.

Summarized statistical data **Table B 13**

Fixed capital consumption[1], in the production of goods by branches and in the production of services, in lei 1913, annual series, period 1862-1947

Years	Total general col. 3+7 million lei	Fixed capital consumption in the production of				
		goods				services
		Total col. 4+5+6 million lei	agriculture million lei	industry million lei	constructions million lei	million lei
1	2	3	4	5	6	7
1862	**26.7**	**15.4**	11.3	4.04	0.03	**11.3**
1863	**27.6**	**16.0**	12.5	3.33	0.14	**11.6**
1864	**28.3**	**16.2**	13.0	3.11	0.05	**12.0**
1865	**28.1**	**16.3**	12.5	3.64	0.16	**11.8**
1866	**29.6**	**17.8**	12.9	4.82	0.06	**11.8**
1867	**29.7**	**17.7**	14.0	3.53	0.16	**11.9**
1868	**31.3**	**18.8**	14.4	4.27	0.17	**12.5**
1869	**31.3**	**18.7**	14.9	3.46	0.34	**12.6**
1870	**32.7**	**19.9**	15.3	4.36	0.25	**12.8**
1871	**32.4**	**19.5**	15.6	3.68	0.23	**12.9**
1872	**34.2**	**21.2**	16.1	4.76	0.37	**13.0**
1873	**36.2**	**23.0**	18.3	4.31	0.37	**13.2**
1874	**38.5**	**26.1**	19.5	6.33	0.23	**12.5**
1875	**40.0**	**27.2**	20.5	6.32	0.4	**12.8**
1876	**38.8**	**25.3**	20.5	4.44	0.38	**13.5**
1877	**41.1**	**26.5**	20.7	5.53	0.28	**14.6**
1878	**41.1**	**25.8**	20.7	4.79	0.3	**15.3**
1879	**44.4**	**29.3**	21.2	7.82	0.28	**15**
1880	**45.4**	**29.8**	21	8.5	0.3	**15.6**
1881	**45.6**	**29.9**	21.7	7.88	0.33	**15.7**
1882	**46.1**	**29.7**	22.5	6.75	0.41	**16.5**
1883	**48.7**	**31.6**	22.6	8.52	0.45	**17.1**
1884	**47.2**	**30.4**	22.8	7.19	0.42	**16.8**
1885	**48.1**	**30.4**	22.8	7.11	0.48	**17.7**
1886	**50.9**	**32.8**	23.0	9.28	0.6	**18.1**
1887	**52.6**	**33.1**	24.0	8.2	0.9	**19.4**
1888	**54.2**	**35.0**	24.2	10.2	0.6	**19.2**
1889	**58.2**	**37.4**	24.7	12.2	0.5	**20.8**
1890	**60.3**	**39.2**	26.1	12.5	0.6	**21.1**
1891	**66.3**	**42.5**	27.0	14.7	0.8	**23.9**
1892	**68.4**	**45.5**	28.1	16.9	0.5	**22.9**
1893	**68.7**	**44.7**	29.4	14.8	0.5	**23.9**
1894	**71.6**	**47.6**	28.1	18.9	0.6	**24.1**
1895	**74.4**	**50.9**	31.0	19.3	0.6	**23.5**
1896	**77.7**	**53.5**	32.8	19.9	0.8	**24.1**
1897	**75.6**	**50.7**	34.7	15.3	0.7	**24.8**
1898	**81.6**	**54.8**	35.8	18.0	1.0	**26.8**
1899	**80.4**	**55.0**	34.9	19.2	0.7	**25.5**
1900	**93.3**	**66.7**	38.7	27.1	0.9	**26.7**

Years	Total general col. 3+7 million lei	Fixed capital consumption in the production of				
		goods				services
		Total col. 4+5+6 million lei	agriculture million lei	industry million lei	constructions million lei	million lei
1	2	3	4	5	6	7
1901	**92.3**	**63.0**	39.7	22.3	0.8	29.3
1902	**96.2**	**66.8**	40.8	25.0	1.0	29.4
1903	**100.9**	**70.7**	41.6	28.0	1.1	30.3
1904	**95.5**	**66.4**	42.2	22.2	2.0	29.1
1905	**101.6**	**69.3**	41.7	25.3	2.3	32.4
1906	**110.5**	**76.0**	44.1	29.4	2.7	34.4
1907	**113.2**	**79.9**	42.5	34.4	3.0	33.3
1908	**120.8**	**86.0**	45.4	36.8	3.8	34.8
1909	**126.9**	**91.0**	46.2	40.6	4.2	35.9
1910	**136.0**	**96.3**	47.2	44.2	4.9	39.7
1911	**162.3**	**119.5**	47.9	66.1	5.5	42.8
1912	**173.9**	**130.1**	49.0	73.9	7.2	43.8
1913	**185.2**	**140.3**	53.8	78.4	8.1	44.9
1914	**184.0**	**140.8**	53.2	78.3	9.3	43.2
1920	**212.6**	**139.8**	76.8	53.1	9.9	72.9
1921	**241.9**	**156.7**	79.8	66	10.9	85.2
1922	**269.4**	**182.1**	82.9	86.9	12.3	87.3
1923	**290.9**	**198.5**	86.7	98.2	13.6	92.4
1924	**320.3**	**219.3**	91.6	112.3	15.4	101
1925	**340.2**	**231.1**	93.9	118.6	18.6	109.1
1926	**373.1**	**250.7**	97.7	132.1	20.9	122.3
1927	**396.2**	**265.8**	101.3	141.2	23.3	130.4
1928	**429.3**	**297.9**	106.2	165.6	26.1	131.5
1929	**446.2**	**312.0**	108.3	177.7	26.0	134.2
1930	**453.1**	**321.0**	97.4	197.4	26.2	132.1
1931	**444.8**	**315.2**	89.9	199.7	25.6	129.6
1932	**434.5**	**314.6**	77.5	210.8	26.3	119.9
1933	**445.8**	**326.6**	71.4	227.5	27.7	119.2
1934	**478.6**	**355.7**	63.5	260.6	31.6	122.9
1935	**530.5**	**394.1**	93.5	266.2	34.4	136.4
1936	**593.3**	**454.4**	125.9	290.9	37.6	138.9
1937	**627.2**	**477.9**	140.0	294.5	43.4	149.3
1938	**622.5**	**473.4**	138.6	290.5	44.3	149
1939	**612.2**	**465.8**	138.7	281.5	45.6	146.3
1940	**489.7**	**380.2**	83.8	251	45.4	109.6
1941	**474.4**	**363**	78.7	237.9	46.4	111.5
1942	**492.3**	**379.8**	72.7	255.3	51.8	112.5
1943	**511.0**	**398.1**	66.4	277.9	53.8	112.9
1944	**389.1**	**304.6**	46.9	204.2	53.3	84.5
1945	**405.6**	**326.2**	53.2	224.9	48.1	79.4
1946	**431.7**	**350.0**	63.9	237.3	48.8	81.7
1947	**455.2**	**364.4**	73.9	244.1	46.4	90.8

Source: 1 Calculated based on chapters I-X of Volume II, 2012 edition in Romanian.

Summarized statistical data **Table B 14**

Gross production, intermediary consumption and the gross value added, by resources of goods and services, in lei 1913, averages of the years, period 1862-1947

Years	Gross production million lei			Intermediary consumption million lei			Gross added value million lei		
	total	goods	services	total	goods	services	total	goods	services
1	2	3	4	5	6	7	8	9	10
1862-1866	1400	1037	363	548	429	119	852	608	244
1867-1871	1570	1217	353	617	500	117	953	717	236
1872-1876	1765	1337	428	673	535	138	1092	802	290
1877-1881	2045	1484	561	747	572	175	1298	912	386
1882-1886	2418	1746	673	872	662	211	1546	1084	462
1887-1890	2729	1981	748	974	739	235	1755	1242	513
1891-1895	3197	2279	918	1168	878	290	2029	1401	628
1896-1900	3298	2315	983	1264	952	312	2034	1363	671
1901-1905	3655	2533	1122	1352	990	362	2303	1543	760
1906-1910	4387	2997	1390	1676	1228	448	2711	1769	942
1911-1914	5247	3508	1739	2018	1453	565	3229	2055	1174
………									
1920-1924	8968	6066	2901	3748	2752	995	5220	3314	1906
1925-1929	11904	7940	3964	5182	3687	1495	6722	4253	2469
1930-1934	12397	8346	4051	5248	3829	1419	7149	4517	2632
1935-1939	14664	9886	4778	6384	4545	1839	8280	5341	2939
1940-1944	10090	6596	3494	4598	3128	1470	5492	3468	2024
1945-1947	7338	5422	1916	3349	2608	741	3989	2814	1175

Source: Calculated based on the data in Table B 16.

Table B15

Structure of the gross production, intermediary consumption and gross value added, by resources of goods and services, averages of the years, period 1862-1947

Averages of the years	Gross production			Intermediary consumption			Value added		
	total %	goods %	services %	total %	goods %	services %	total %	goods %	services %
1	2	3	4	5	6	7	8	9	10
1862-1866	100	74.1	25.9	100	78.3	21.7	100	71.4	28.6
1867-1871	100	77.5	22.5	100	81.0	19.0	100	75.2	24.8
1872-1876	100	75.8	24.2	100	79.5	20.5	100	73.4	26.6
1877-1881	100	72.6	27.4	100	76.6	23.4	100	70.3	29.7
1882-1886	100	72.2	27.8	100	75.9	24.1	100	70.1	29.9
1887-1890	100	72.6	27.4	100	75.9	24.1	100	70.8	29.2
1891-1895	100	71.3	28.7	100	75.2	24.8	100	69.0	31.0
1896-1900	100	70.2	29.8	100	75.3	24.7	100	67.0	33.0
1901-1905	100	69.3	30.7	100	73.2	26.8	100	67.0	33.0
1906-1910	100	68.3	31.7	100	73.3	26.7	100	65.3	34.7
1911-1914	100	66.9	33.1	100	72.0	28.0	100	63.6	36.4
………									
1920-1924	100	67.6	32.4	100	73.4	26.6	100	63.5	36.5
1925-1929	100	66.7	33.3	100	71.2	28.8	100	63.3	36.7
1930-1934	100	67.3	32.7	100	73.0	27.0	100	63.2	36.8
1935-1939	100	67.4	32.6	100	71.2	28.8	100	64.5	35.5
1940-1944	100	65.4	34.6	100	68.0	32.0	100	63.1	36.9
1945-1947	100	73.9	26.1	100	77.9	22.1	100	70.5	29.5

Source: Calculated based on the data in Table B 16.

Summarized statistical data

Table B 16

Gross production, intermediary consumption and gross value added, in lei 1913 and structure, annual series, period 1862-1947

Years	Gross production		Intermediary consumption		Gross added value	
	million lei	%	million lei	%	million lei	%
1	2	3	4	5	6	7
1862	1436	100	582	40.5	854	59.5
1863	1508	100	572	37.9	936	62.1
1864	1572	100	601	38.2	971	61.8
1865	1241	100	493	39.7	748	60.3
1866	1242	100	496	39.9	746	60.1
1867	1490	100	578	38.8	912	61.2
1868	1638	100	644	39.3	994	60.7
1869	1543	100	633	41.0	910	59.0
1870	1564	100	609	38.9	955	61.1
1871	1613	100	619	38.4	994	61.6
1872	1657	100	668	40.3	989	59.7
1873	1686	100	633	37.5	1053	62.5
1874	1690	100	652	38.6	1038	61.4
1875	1950	100	739	37.9	1211	62.1
1876	1841	100	670	36.4	1171	63.6
1877	1874	100	670	35.8	1204	64.2
1878	1930	100	692	35.9	1238	64.1
1879	2004	100	734	36.6	1270	63.4
1880	2478	100	889	35.9	1589	64.1
1881	1938	100	750	38.7	1188	61.3
1882	2461	100	865	35.1	1596	64.9
1883	2378	100	890	37.4	1488	62.6
1884	2055	100	768	37.4	1287	62.6
1885	2450	100	869	35.5	1581	64.5
1886	2747	100	966	35.2	1781	64.8
1887	2663	100	993	37.3	1670	62.7
1888	2721	100	964	35.4	1757	64.6
1889	2724	100	938	34.4	1786	65.6
1890	2808	100	999	35.6	1809	64.4
1891	2980	100	1112	37.3	1868	62.7
1892	3210	100	1179	36.7	2031	63.3
1893	3084	100	1124	36.4	1960	63.6
1894	3299	100	1164	35.3	2135	64.7
1895	3415	100	1262	37.0	2153	63.0
1896	3579	100	1348	37.7	2231	62.3
1897	2998	100	1135	37.9	1863	62.1
1898	3571	100	1322	37.0	2249	63.0
1899	2772	100	1183	42.7	1589	57.3
1900	3570	100	1330	37.3	2240	62.7
1901	3637	100	1291	35.5	2346	64.5

Years	Gross production		Intermediary consumption		Gross added value	
	million lei	%	million lei	%	million lei	%
1	2	3	4	5	6	7
1902	3618	100	1325	36.6	2293	63.4
1903	3805	100	1416	37.2	2389	62.8
1904	3088	100	1231	39.9	1857	60.1
1905	4127	100	1500	36.3	2627	63.7
1906	4535	100	1664	36.7	2871	63.3
1907	3831	100	1517	39.6	2314	60.4
1908	4173	100	1625	38.9	2548	61.1
1909	4175	100	1636	39.2	2539	60.8
1910	5220	100	1934	37.0	3286	63.0
1911	5191	100	1925	37.1	3266	62.9
1912	5313	100	1992	37.5	3321	62.5
1913	5486	100	2125	38.7	3361	61.3
1914	5000	100	2032	40.6	2968	59.4
...						
1920	7380	100	3065	41.5	4315	58.5
1921	8221	100	3474	42.3	4747	57.7
1922	9151	100	3854	42.1	5297	57.9
1923	9952	100	4097	41.2	5855	58.8
1924	10134	100	4246	41.9	5888	58.1
1925	10731	100	4641	43.2	6090	56.8
1926	11812	100	5073	42.9	6739	57.1
1927	12018	100	5239	43.6	6779	56.4
1928	12151	100	5396	44.4	6755	55.6
1929	12806	100	5561	43.4	7245	56.6
1930	12559	100	5261	41.9	7298	58.1
1931	12600	100	5115	40.6	7485	59.4
1932	11756	100	4956	42.2	6800	57.8
1933	12258	100	5291	43.2	6967	56.8
1934	12812	100	5643	44.0	7169	56.0
1935	13821	100	6013	43.5	7808	56.5
1936	14326	100	6222	43.4	8104	56.6
1937	15109	100	6596	43.7	8513	56.3
1938	14916	100	6535	43.8	8381	56.2
1939	15148	100	6557	43.3	8591	56.7
1940	10171	100	4635	45.6	5536	54.4
1941	10455	100	4751	45.4	5704	54.6
1942	10072	100	4711	46.8	5361	53.2
1943	11232	100	5098	45.4	6134	54.6
1944	8521	100	3798	44.6	4723	55.4
1945	7009	100	3333	47.6	3676	52.4
1946	6728	100	3098	46.0	3630	54.0
1947	8275	100	3615	43.7	4660	56.3

Source: Calculated based on the data from chapters 1-10, Volume II, 2012 edition.

Summarized statistical data **Table B 17**

Gross production, intermediary consumption and gross value added in the production of goods, in lei 1913, annual series, period 1862-1947

Years	Gross production million lei	Intermediary consumption million lei	Gross value added million lei	Years	Gross production million lei	Intermediary consumption million lei	Gross value added million lei
1	2	3	4	1	2	3	4
1862	1092	469	623	**1903**	2685	1052	1633
1863	1148	454	694	**1904**	2036	887	1149
1864	1177	471	706	**1905**	2869	1096	1773
1865	880	374	506	**1906**	3186	1226	1960
1866	889	380	509	**1907**	2549	1109	1440
1867	1140	465	677	**1908**	2844	1196	1648
1868	1229	511	718	**1909**	2788	1192	1596
1869	1247	533	714	**1910**	3618	1415	2203
1870	1262	508	754	**1911**	3460	1373	2087
1871	1205	485	720	**1912**	3548	1425	2123
1872	1249	535	714	**1913**	3697	1532	2165
1873	1268	496	772	**1914**	3328	1484	1844
1874	1276	519	757	----------	----------	----------	----------
1875	1525	601	924	**1920**	5061	2269	2792
1876	1368	524	844	**1921**	5400	2486	2914
1877	1341	506	835	**1922**	6317	2890	3427
1878	1360	514	846	**1923**	6804	3039	3765
1879	1455	562	893	**1924**	6751	3079	3672
1880	1904	709	1195	**1925**	7303	3367	3936
1881	1359	570	789	**1926**	7889	3584	4305
1882	1839	672	1167	**1927**	7860	3678	4182
1883	1703	679	1024	**1928**	8057	3843	4214
1884	1416	567	849	**1929**	8590	3965	4625
1885	1750	651	1099	**1930**	8339	3814	4527
1886	2020	739	1281	**1931**	8333	3657	4676
1887	1911	752	1159	**1932**	7917	3647	4270
1888	2015	743	1272	**1933**	8412	3903	4509
1889	1974	703	1271	**1934**	8729	4126	4603
1890	2023	756	1267	**1935**	9302	4294	5008
1891	2096	830	1266	**1936**	9609	4420	5189
1892	2329	900	1429	**1937**	10124	4679	5445
1893	2143	831	1312	**1938**	10118	4667	5451
1894	2346	862	1484	**1939**	10278	4667	5611
1895	2483	967	1516	**1940**	6592	3100	3492
1896	2583	1036	1547	**1941**	6729	3205	3524
1897	2030	826	1204	**1942**	6387	3185	3202
1898	2527	993	1534	**1943**	7346	3438	3908
1899	1850	882	968	**1944**	5928	2714	3214
1900	2585	1021	1564	**1945**	5179	2627	2552
1901	2550	937	1613	**1946**	4901	2407	2494
1902	2522	974	1548	**1947**	6186	2791	3395

Source: Calculated based on the data from chapters 1-3, Volume II, 2012 edition.

Table B 18

Gross production, intermediary consumption and gross added in the production of services, in lei 1913, annual series, period 1862-1947

Years	Gross production million lei	Intermediary consumption million lei	Gross value added million lei	Years	Gross production million lei	Intermediary consumption intermediary million lei	Gross value added million lei
1	2	3	4	1	2	3	4
1862	344	113	231	**1903**	1119	362	757
1863	359	118	241	**1904**	1052	344	708
1864	395	130	265	**1905**	1258	404	854
1865	361	118	243	**1906**	1349	439	910
1866	353	116	237	**1907**	1282	408	874
1867	350	115	235	**1908**	1329	429	900
1868	410	134	276	**1909**	1387	443	943
1869	296	100	196	**1910**	1602	519	1084
1870	302	102	200	**1911**	1731	552	1179
1871	408	134	274	**1912**	1765	567	1198
1872	408	133	275	**1913**	1790	593	1197
1873	418	136	282	**1914**	1672	548	1124
1874	413	132	281	.....			
1875	426	138	288	**1920**	2319	796	1523
1876	474	147	327	**1921**	2822	988	1834
1877	533	164	369	**1922**	2834	965	1869
1878	570	179	391	**1923**	3148	1058	2090
1879	549	171	378	**1924**	3384	1168	2216
1880	574	180	394	**1925**	3428	1273	2155
1881	579	180	399	**1926**	3923	1490	2433
1882	623	195	428	**1927**	4158	1561	2597
1883	675	211	464	**1928**	4094	1553	2541
1884	639	201	438	**1929**	4216	1596	2620
1885	700	219	481	**1930**	4220	1449	2771
1886	727	227	500	**1931**	4266	1457	2809
1887	752	241	511	**1932**	3838	1307	2531
1888	706	221	485	**1933**	3846	1387	2459
1889	750	235	515	**1934**	4083	1490	2593
1890	785	243	542	**1935**	4519	1719	2800
1891	884	282	602	**1936**	4717	1802	2915
1892	881	279	602	**1937**	4985	1917	3068
1893	941	293	648	**1938**	4798	1868	2930
1894	954	303	651	**1939**	4870	1890	2980
1895	932	295	637	**1940**	3579	1534	2045
1896	996	312	684	**1941**	3726	1546	2180
1897	968	309	659	**1942**	3685	1526	2159
1898	1044	328	716	**1943**	3886	1659	2227
1899	922	300	622	**1944**	2592	1083	1509
1900	985	309	676	**1945**	1831	707	1124
1901	1086	353	733	**1946**	1828	692	1136
1902	1096	351	745	**1947**	2089	824	1265

Source: Calculated based on the data from chapters 4-10, Volume II, 2012 edition.

Table B 20

Gross value added by categories of resources, *total and per capita*, in lei 1913 and in dynamics, averages of the selected years, period 1862-1947

Resources	1862-1866	1882-1886	1896-1900	1911-1914	1920-1924	1935-1939	1940-1944	1945-1947
GVA million lei 1913	**851.1**	**1564.4**	**2034.4**	**3229**	**5220.3**	**8280**	**5492**	**3988.6**
dynamics, %	100	181.7	239	379.4	613.3	972.7	645.2	468.6
***per capita*, lei 1913**	*209*	*318*	*346*	*439*	*327*	*424*	*407*	*252*
dynamics, %	100	152.4	166	210.3	156.6	203.3	195.1	121
Resources								
I. *Goods,* million lei 1913	607.6	1084.2	1363.3	2055	3314	5340.8	3467.9	2813.8
***per capita*, lei 1913**	*149*	*223*	*232*	*279*	*207*	*274*	*257*	*178*
dynamics, %	100	149.7	155.9	187.5	139.3	183.7	172.6	119.5
I$_1$. Agriculture and others								
mil. lei 1913	454.4	787.1	867.4	1155	2077.2	2885.5	1543.5	1126.2
per capita,	*111*	*162*	*148*	*157*	*130*	*148*	*114*	*71*
dynamics, %	100	145.3	132.6	140.9	116.8	132.7	102.7	64
I$_2$. Industry, million lei 1913	135.6	233.9	387.1	723.7	908	1951.6	1503.5	1312.3
***per capita*, lei**	*33*	*48*	*66*	*98*	*57*	*100*	*111*	*83*
dynamics, %	100	144.7	198.3	295.9	171	300.8	335.3	249.8
I$_3$ Constructions, million lei 1913	17.7	63.2	108.7	176.5	328.8	573.6	420.9	375.3
***per capita*, lei**	*4*	*13*	*19*	*24*	*2*	*29*	*31*	*24*
dynamics, %	100	299.5	426.7	552.8	56	677.3	719.1	547.4
II.Services, million lei 1913	243.5	462.2	671.2	1174	1906.4	2938.7	2023.8	1178.8
***per capita*, lei**	*60*	*95*	*114*	*160*	*119*	*151*	*150*	*75*
dynamics, %	100	159.2	191.5	267.4	200	252.3	251.3	125
II$_1$. Transportation,								
million lei 1913	61.7	89.6	129.5	195.5	263.4	450.9	344.4	339.5
***per capita*, lei**	*15*	*18*	*22*	*27*	*17*	*23*	*26*	*22*
dynamics, %	100	121.8	145.8	175.7	109	152.7	168.8	142
II$_2$. Trade, million lei	212.5	270	342	612.8	1048.9	1145	548.8	354.2
***per capita*, lei**	*52*	*55*	*58*	*83*	*66*	*59*	*41*	*22*
dynamics, %	100	106.6	111.8	159.9	126.1	112.6	78.1	43
II$_3$. Banking and financial								
services, million lei	0.1	3.9	22.5	66.6	139.8	87.1	36.2	10.5
***per capita*, lei**	*x*	*x*	*4*	*9*	*9*	*4*	*3*	*1*
dynamics, %	x	x	100	236.2	228.4	116.5	70	17.3
II$_4$. Public adm., army, health,								
education, other, million lei	28.7	49.4	99.1	167.5	168.3	831.9	786	152
***per capita*, lei**	7	*10*	*17*	*23*	*11*	*43*	*58*	*10*
dynamics, %	100	144.4	239.9	323.6	149.8	605.8	828.1	136.7
II$_5$. Liberal professions, million lei	0.9	3.8	11	22.8	87.2	125.2	83.8	31.5
***per capita*, lei**	*0.2*	*1*	*2*	*3*	*5*	*6*	*6*	*2*
dynamics, %	x	x	100	165.4	291.4	342.4	331.6	106.4
II$_6$. Employed domestic								
personnel, million lei	19.5	24.1	30.5	39.3	70.2	60.1	38.8	37
***per capita*, lei**	*5*	*5*	*5*	*5*	*4*	*3*	*3*	*2*
dynamics, %	100	103.7	108.7	111.7	91.9	64.4	60.2	49
II$_7$ Real estate transactions etc.,								
million lei	11.2	21.5	36.6	69.7	128	238.5	185.7	250.1
***per capita*, lei**	*3*	*4*	*6*	*9*	*8*	*12*	*14*	*16*
dynamics, %	100	161	227	345	291.9	445.1	501.4	576.4

Source: Calculated based on tables B 8 and B 10.

Section C

GROSS DOMESTIC PRODUCT DURING THE PERIOD 1950-1979

Historical and methodological introduction

In the previous Section B, the macroeconomic indicators compiled for 1862-1947 were briefly presented.

The sections C and D, that follow chronologically (1950-1979 and 1980-2010), continue the research in order to complete the secular time series of the gross domestic product until 2010; for this purpose, being processed in various ways, the indicators of the national income in the material production system –MPS- and of the gross domestic product in the national accounting system -NAS-, were used, calculated by the official statistics.

The synthesis macroeconomic indicators, regarding the 1950-1990 period, of the centralized economy in Romania - social product and national income - are based on the MPS methodology. According to it, value creators are only the material production activities and material services; the other activities: social, medical, educational, cultural, related to the public administration etc. are considered as necessary, but not as creating value; they feed from the value generated by the productive sectors. On the contrary, the NAS methodology considers that any activity involving goods or services that enters the money circuit generates value.

Both systems, of the material and production and that of the national accounts, have undergone revisions along the decades, and adjustments by each country of the two economic and social systems. Thus, in each system, there were deviations from the standard scheme. The UN specialized bodies were periodically reprocessing and harmonizing the data of the countries in order to make them comparable, but recalculated also some macroeconomic indicators of the countries with planned economy, in order to make them compatible with the indicators of the national accounts, used by most states, in order to compare them with those of other countries.

In Romania, until 1990, the modification or the improvement of the calculation system, usually took place, based on the studies of the synthesis institutions – The General Directorate of Statistics (the current National Institute of Statistics), the State Planning Committee, the Ministry of Finance, and those of the research institutes for economics, finance etc. The moments of these re-examinations were due to the accumulation of certain disparities in the values and material structure of the sectors of the national economy sectors, which involved changes in price leverages, in their calculation basis, etc.

This is what happened when the prices were "settled" in 1955, 1963 etc. In the centralized economy, there was the practice of harmonizing the modifications of the economy's structure, of the costs prices, of labour productivity etc., unlike market economies, where the rebalancing is restored continuously and automatically, mainly by the free market.

In centralized economies, on the other hand, studies for the calculation of the macro-economic synthesis indicators, based on the national accounts system have been performed.

In Romania, since the 70s, competent teams of the synthesis institutions have developed studies for the calculation of the gross domestic product and its components, for the methodological compatibility of the two systems, drafting, in parallel, the synthesis aggregates. For this paper, we had access to some of these studies that were very useful.[14]

The situation of the basic synthesis indicators of the national economy for the period 1950-2010, calculated by the official statistics, is as follows: for the first period, 1950-1990, the global indicator - national revenue, calculated based on the MPS; this is presented in the series Romania's Statistical Yearbook, NIS, in the unit – million lei current prices –, from 1970 until 1991, and in the dynamics indexes, for the entire period 1950-1990.

After 1991, this indicator no longer appears in the statistics, being replaced by the aggregated gross domestic product published in a retrospective manner from 1980, in the Statistical Yearbook – 1990 and 1991- with the current prices, by resources, with indexes and structure.

Thus, in our research, we have converted the national income (MPS), into the gross domestic product for the period 1950-1979, and for the years 1980-2010, for which the official gross domestic product is available, this was harmonized with comparable prices.

In this section C, the indicator national income and its aggregates for the period 1950-1979, registered by the national statistics in MPS, were translated in the indicator GDP based on the NAS methodology; the latter, expressed in comparable prices was converted into USD

[14] Amongst these studies, we mention: The calculation of the social product and of the national income at an extanded scale, DCS (The Central Directorate of Statistics), BDS (The Bureau of Secret Documents), no.0194-1973; The social product, the material expenditures and the national income in 1974, comparable prices 1963, DCS-BDS-0151-1974; The calculation of the gross domestic product and of the national income for 1971-1973, based on the UN methodology, DCS-BDS-0190/1974; The national income, the gross and net domestic product based on the UN methodology, for 1970-1973, as comparable prices, DCS-BDS-0193-1973; The social product, the material expenditure and the national income generated and used in 1973-DCS-BDS-0189-1973; The balance of the generation, distribution and end use of the national income, DCS-BDS-0188-1973; The methodology to determine the social product and the national income, of the global product and of the gross value added, proposals for improvement, 1979-DCS-BDS-017-1979, etc. The Centre for Financial and Monetary Research of the Ministry of Finances also had such studies: The content of the main economic indicators in the countries with a market economy, 1974; Studies on the possibilities of use in the Socialist Republic of Romania of a national account system, 1974; The calculation methodology for the national income, the gross and net domestic product, according to the national accounting system, 1976, etc.

at the purchasing power parity, currency of 2000, according to the procedures explained that in Introduction, in order to ensure the comparison and continuity with the previous set of GDP 1862-1947 and with the subsequent one – 1980-2010 – as well as for possible comparisons with other countries.

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Before we start explaining the conversion method of the national income to the gross domestic product, we briefly describe the background of the national economy development, as ground for the evolution of the macroeconomic indicators.

At the end of the World War, 1939-1945, a great part of the structures of the European political and governance system was radically changed, as a result of the winning powers decisions, regarding the partition of the influence and domination areas, often without consulting the people in question.

Romania, like other countries in the Eastern and South-Eastern part of the continent, was assigned to the sphere of influence of the Soviet Union that, immediately after 1945, covered by the treaties concluded with the other winner partners, enforced the pro-Soviet power in this area.

The internal communist forces, getting the power backed by soviet army, promoted political, ideological and administrative dictatorship in Romania; through violence, social elites and traditional institutions were eliminated from the public and political life; the institutions, the democratic forms and their structures – parties, parliament, free press etc. were suppressed; they drafted and enforced, by coercion means, legalized by the Constitution of 1948, the principles of forming and developing the socialist centralized state economy: nationalization – confiscating the main individual economic means, the "capitalist" ones, establishing the state property and the cooperatives, as dominating property in the national economy, the development of the economic, social, cultural etc. activities, based on the central planning, the single plan and the short, medium and long term forecast.

The fundamental purpose of the country social and economic development, claimed by the Constitution, was the increase of the material and cultural living standard of the entire population.

The achievement means envisaged were the increase of the production of goods and services, of the social labour efficiency by industrializing and electrifying the country, by going from manual production processes and techniques to the mechanized ones.

The social and economic evolution took place in several stages, as follows: the period of economy recovery –1945-1950 -, after the severe damages caused by the war; in 1950, the economy of Romania was reaching, to a great extent, the level before of 1938; in 1949 and 1950 the first two annual development plans were implemented, followed by 5 year plans until 1989. By setting up the Council for Mutual Economic Support -CMES- of the socialist countries in Europe, the 5 year economic plans were coordinated between the participating countries.

At the beginning of the researched period, it was expected that the development take place based on its own resources, without foreign technical and capital contribution; subsequently, after the change in the communist leadership of the country, since the 60s, in order to counteract the low level of domestic technique and technology and from CMES sources, Romania became more open to the collaboration with the international financial and commercial institutions, with the global market; it becomes a member of the IMF and of other international financial and economic institutions; it took loans from the Western financial institutions to import advanced technologies, for the construction of some big industrial and electric power objectives, for irrigation installations etc.

The economic evolution of Romania in the period 1950-1979 recorded a sustained development, enhanced by the funds coming from big external loans, which led to structural and qualitative transformations and a high growth rate of the domestic product. These were expressed in a set of indicators briefly presented below.

The most important potential resource of the country[15] is the population and its professional qualification (Table Ca).

In the three decades, 1950-1980, we notice a growth of six million inhabitants, partly due also to the restrictions imposed to abortion, enforced by the state in 1966; the demographic evolution in this period reflects a high rate of the natural growth.

Equally important is the change in the ratio between the urban and rural population; Romania, in the modern era, for a century, as an agricultural country, has kept the relative ratio between the inhabitants of cities and villages constant, around 1:4. Following the forced industrialization and economic and social restructuring, the status of an agricultural or predominantly agricultural country was exceeded, the new profile being that of an industrialized and agricultural country.

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[15] The main sources based on which the data in these part of the study were replicated or calculated are: the Statistical Yearbook of Romania, 1966-1981; RENEL, *Electrificarea în România, 1951-1992*, Bucharest, 1996; etc.

Table Ca

Population, by urban/rural residence and participation in economic activities in the period 1950-1980

Years	Total population	Population by urban/rural residence		Working population				Employed population	
				total	shares				
					agriculture	industry and constructions	services	total	share in the working population
	mil. inhabi-tants	urban %	rural %	mil. per-sons	%	%	%	mil. per-sons	%
1	2	3	4	5	6	7	8	9	10
1950	16.3	25.4	74.6	8.4	74.1	14.2	11.7	2.1	25.0
1960	18.4	32.1	67.9	9.5	65.4	20.0	14.6	3.2	34.7
1970	20.3	40.8	59.2	9.9	49.1	30.8	20.1	5.1	51.5
1980	22.2	45.8	54.2	10.4	29.4	43.8	26.8	7.3	70.2

Source: see the footnote 15

The urban population has increased also, both in absolute terms and as percentage, compared to the rural one. The industrialization has created over 80 new cities has expanded the old ones, and the urban population increased from 4 million inhabitants in 1950 to 10.2 mil. in 1980, mainly due to the transfer of the labour force from villages to cities, from agriculture to non-agricultural sectors, mainly to the industry

The professional structure, by sector, of the working population changed; from 74% - the share of agriculture at the beginning of the period, until 1980, this sector is left with 29.4% of the working population; the share of the population working in industry and constructions increased to 43.8%, and in the services sectors double, from 13.1% to 26.8%.

The third significant change in the employment structure is the multiplied increase in the payrolled labour force; the number of jobs increases from 2.1 mil. to 7.3 mil. at the end of the period –1980- ; approx. 70% of the working population appears as having a salary, respectively with higher qualification, efficiency and remuneration. The speed of such restructuring, amongst which the on the job training, has generated and sustained in the economic and social body serious managerial gaps, individual and collective and mind-sets behaviours, with negative effects on the quality of the development.

Of all the sectors of the economy, **agriculture**, respectively the rural environment where in the 40s approx. 80% of the country's population was living, was the production sector with the poorest work equipment - overwhelmingly manual - and with the lowest efficiency; it also had the most difficult problems to be solved in the Romanian society.

Industrialization had as objectives, besides the electrification of the country, the foundation of the basic industry branches, building infrastructure, but also the reorganization and the mechanization of the agriculture based on vegetable and animal mass production. Placing agriculture on a modern automated foundation in all the developed countries took place after the industrialization of the other production and material services sectors, which ensured big accumulations for the transformation of the agricultural sector. In Romania, the centralized political power mobilized financial and technical resources for the simultaneous development of the sectors, accompanied though by a set of structural gaps strongly manifested during the crisis of the ninth decade.

From a total agricultural surface of 15 mil. ha, the one that could be cultivated was of approximately 10 mil. ha; here the investment efforts were focused. The big agricultural holdings were set up through political and economic means, by various methods of extra-economically and economically constraining the small producers; the organization of the agriculture, besides the individual households in the mountain areas, was represented in 1980, by 400 state agricultural enterprises with 1.6 mil. ha arable land, 4600 agricultural cooperatives –CAP- with 7.3 mil. ha arable land and 700 stations for the mechanization of agriculture[16]; these were equipped with the main stock of work and transportation machinery for agriculture, provided by the new industrial branches; factories producing tractors, trucks, harvesters, irrigation installations etc. were set up, as well as plants producing chemical fertilizers, pesticides etc. in order to ensure the internal resources of the agricultural sector. The animal mass production was organized in big units for breeding cattle, swine, poultry etc. Also, the secondary and higher education in the field of agriculture has developed for the training of the executive and management positions, new station and institutes for research and agricultural experiments were created; the irrigation system was started, which in 1980 covered 2050 thousand ha; silos and warehouses were built for the storage of the vegetable and animal production etc. The main data showing how agriculture was equipped are presented in Table Cb.

These data show the transformation of agriculture, through massive investments, into a mechanized sector, its fixed assets reaching 13.3 bn. USD in 1980; the value in USD was calculated using the exchange rate in 1989 of 14.9 lei. These investments were reflected by the multiplication of the number of tractors from 14 thousand to 147 thousand, of the number of harvesters increased up to 57 thousand, of the agricultural specialists several times more;

[16] Popescu Marin, *Lecţii ale tranziţiei. Agricultura 1990-2000*, Editura Expert, 2001.

the fertilizer plants supplied in 1980 1114 thousand tons active substance, namely 117 kg per cultivated ha.

Table Cb

The evolution of agriculture endowments during the period 1950-1980

Years	Agricultural machinery stock of which:		Agriculture educated specialists		Chemical fertilizers used		The surface covered with irrigation systems	Annual investments in agriculture
	tractors thousand pieces	harvesters thousand pieces	higher thousand people	secondary thousand	total thousand tons	per ha arable kg	thousand ha	thousand dollars
1	2	3	4	5	6	7	8	9
1950	14	0.0	3.3	3.1	6	0.6	43	45
1960	44	3.3	5.3	5.9	75	7.8	138	355
1970	107	23.7	16.4	12.8	594	63	665	858
1980	147	56.8	26.4	20.9	1114	117	2048	1828

Source: Romania's Yearbook of Statistics 1990, 1991

With this technical and human resources, agriculture doubled and tripled its vegetable and animal production; comparing the averages of years 1951-1955 and 1976-1980, the annual production of grains increased from 8.2 mil. tons to 19.4 million tons, the sugar beet production from 1.3 million tons to 6.1 million tons etc.

In turn, the livestock, according to the annual censuses, increased between 1951-1981, for cattle from 4.5 million heads to 6.5 million heads, for swine from 2.2 million heads to 11.5 million heads, and the number of poultry increased from 17.6 million to 97.8 million.

The efforts of organizing and investing in the agricultural sector had also qualitative results. The average yield per ha for various grains, just like in the field of animal breeding, has doubled or tripled, being far from the levels before the war. However, the specialized studies underline big gaps, from 1.5 to 3 times of the domestic yields compared to the ones in the developed countries, and also low efficiency and high investment costs in Romania's agriculture.

There were changes also in the non-agricultural sectors. **The industry** inherited in 1948, with a structure with light and extractive sectors was renewed with modern techniques and technologies, was completed with new branches like metallurgy, manufacture of machinery and equipment, chemicals, construction materials for industrial sites, housing etc. But, here too, essential shortages were related to high costs, low efficiency, poor quality of some products, very poor external competitiveness accompanied by big losses in the international trade.

The facilities for industrial production and constructions have multiplied in the 20th century. In the period 1950-1980, 3.1 million jobs were created, and an installed motive power of 9,342 mil. kW was built. This human and energetic potential proportionally increased the industrial production and the constructions, starting, of course, from a low base in 1950.

The electrification of Romania was one of the pillars of industrialization, the installed capacity growing from 740 MW in 1950 to 16,109 MW in 1980, ensuring the entire industrial and residential energy consumption of the country. The investments in production and distribution installations until 1980 cumulated 9.1 billion $. A positive result was the electrification of villages (from 445 to approx. 13,000) the number of the subscribers (rural households) growing from 151 thousand to 2,958 thousand.

The development of the three sectors for the production of goods - agriculture, industry and constructions - led to the proportional expansion of the services sectors - transport, telecommunications, domestic and international trade, education, medical care, culture, arts, administration etc.

However, the economic growth had only a partial impact on the consumption and welfare of the population, as the accumulation fund for investments was higher and higher[17].

Compared to the extreme poverty of most of the population in the first years following the war, 1945-1948, the following decades until 1980 witnessed increased real incomes of the population, the salaries, reflected in a corresponding consumption of industrial and food products per capita, which improved the standard of living that, however, was much lower than in the Western industrialized European countries.

To this, millions of new homes built between 1950-1980, from public funds were added; most of the employed people moved to the cities following industrialization received, in renting regime[18], a dwelling with the minimum comfort – central heating system, water, electricity etc.

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[17]

National income used, of which (%):	**1950**	**1960**	**1970**	**1980**
Total	100	100	100	100
accumulation fund	24	20	29	36
consumption fund	76	80	71	64

Source:*Romania's Yearbook of Statistics 1990*

[18] The lease for modest state dwellings represented between 4 and 8% of the expenditures budget of the families of employees.

In terms of medical and social care, during the same period, 1950-1980, an increased number of beds in the medical units from 69 thousand to 208 thousand, and of the number of doctors from 16 thousand to 40 thousand etc. has to be noticed. For rest and treatment purposes, mountain and seaside resorts were extended and built, which in 1980 had 2.2 mil. visitors, approximately 10% of the country's population.

As a result of improving the conditions for living, consumption, medical care, the life expectancy of the population increased from 42 years in 1946-1947, to 69.3 years in 1977-1978.

Romania's economic growth in this period was no exception; our country followed the general trend, specific to the long term cycle, post war, of economic and industrial growth of Europe and other continents, with annual growth rates of 6-9%. The favourable international economic context also played a stimulating role, next to the substantial loans contracted from abroad, materialized in imports of Western advanced technique and technology.

The fundamental characteristic of the economic development of the sixth and seventh decade of the 20th century in Romania, was an extensive and quantitative growth that, due the mechanism of the economic system and to the despotic political management, brought about a lot of the qualitative and efficiency lacks of the social and economic body.

The situation worsened in the 9th decade also at the global level, when the negative effects of the oil crisis and USD inflation, after the suspension of its convertibility in the 8th decade, as to become general; the European economic growth rate decreased, in average, to 1.5-2.5% per year.

Amongst the shortages that envisaged the efficiency of the economy, have to be mentioned: productivity below the designed one for many of the imported machinery, but also for the one manufactured in the country; qualification below labour force standards, especially for the "on the workplace" training; the incomplete use of the fixed assets and production capacity; in this sense, the immobilizations of funds have increased from 29 bn. lei in 1975, to 94 bn. lei in 1980, the latter representing almost 20% from the value of the domestic revenue.

The losses and subsidies in the economy, mainly revealed by the foreign trade, increased from 4.2 billion lei in 1955 to 17.8 billion lei in 1965 and 47.1 billion lei in 1979. During the latter year, the losses and subsidies represented 9.6% of the domestic income.

A last remark regards the forced industrialization that envisaged the autarchy of the industrial structures; industrial units and branches with a narrow domestic market, with high production costs, which, when it came to export, were constantly generating significant losses for the national economy.

The dialectics of an extensive industrialization policy like this showed that, as the quantity of production increased and the production quality decreased, the economy accumulated more and more difficulties, including financial arrears; and the central planned management was trying to solve them through the same means that had caused them – overinvestments, subsidies, forcing the export that generated the losses etc.

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In this **Section C,** the objective of the research was to calculate, until the beginning of 1980, when the National Institute of Statistics started to publish the GDP, and based on the official indicator - domestic revenue, 1950-1979, the necessary data for the area of non-material services and the consumption of fixed capital, specific to NAS, that we can cumulate in the global indicator.

In our data conversion operations of the domestic revenue into the gross domestic product, we have used the conventional group – material and non-material services according to the MPS - because of methodological needs.

As it was shown before, the published data of the domestic income do not provide information in absolute figures and in comparable prices, for the necessary calculations.

This is why, besides the published figures, we have used information from the above-mentioned archived statistics of the Institute of National Economy, provided officially by the General Directorate of Statistics. These studies, at that time, were considered as trade secrets and strictly classified; we mentioned them when we referred to that information.

We emphasize that the operations of transposing the domestic income indicator, from the MPS methodology, into the gross domestic product in the NAS methodology, were carried out using simplified methods that are explained in those chapters, as we didn't have all the necessary elements for a very rigorous accuracy.

Before starting the compatibility statistical operations **it is necessary to adjust the official series of the domestic income** which has many errors that could lead to important distortions of the resulted GDP series.

The compatibility of the basic indicators from the period 1950-1979 was done through the following operations:

a. adjusting the official series of the domestic income showed by the publications of that time, in order to obtain a new series as close as possible to the historical reality, free from official exaggerations and expressed in comparable prices;

b. calculating in comparable prices the nonmaterial services and the ccumulation of their net value to the domestic income in order to complete its structure in MPS and the one in NAS;

c. calculating the fixed capital consumption, from the national economy, for the entire structure for the period 1950-1979 and adding the amounts to the indicator that will become the GDP.

Explaining each operation.

a. Adjusting the official statistics series of the domestic income for the period 1950 – 1979

In order to understand the causes and the need for these operations on the main indicator of the economic growth, we want to remind the reader that the communist regime, in the opinions of the people living both in Romania and abroad, used many "justifications" in order to confirm the fundamental thesis of its ideology, of the superiority of the socialist system.

The "fast" economic growth was persuasively expressed by the high growth rate of the domestic income. Of course, most of the domestic income was obtained by increasing the number of employees, the investment fund, and partly to the labour productivity as it resulted from the previous data. In the official statistics published, the series of the domestic income is shown, as mentioned, using dynamics indexes for the entire period, with a flat base for some years and in absolute figures for certain intervals, in current or comparable prices; in comparable data[19] the domestic income, for all calculations, is expressed in 1963 prices.

However, some critical studies[20] point out differences in the size of the domestic revenue generated by factors other than production. The entire set of data of the domestic income, 1950 –1979, was accepted in the comparable prices of 1963 because we have information from archive statistics that allow us to restore the indicator's evolution for the researched period[21].

[19]*Romania's Statistical Yearbook* 1990.

[20] Marvin R. Jackson, *National Accounts and The Estimation of Gross Domestic Product and lts Growth Rates for Romania,* The World Bank, 1985. In this paper we see, after the careful examination of the components of the domestic income and of their estimation prices, that "the official value of the material production income has ± 5-6% error margin, and the GDP numbers for sure have a wider error margin, possibly of ± 10-12%" (p. 44).

[21] *The situation of the Social product, material expenditure and domestic income by sectors and per capita, 1950-1970*, DCS-BDS, tables document no. 027/1972. The statistics present in a new way the domestic income on three bases, starting with 1950: prices 1950 until 1959; inprices 1955 from 1950 until 1965 and as the prices were in 1963 from 1950 until 1970. For years 1970-1975 the data comes from the tables annexed to the letter of the Directorate of Statistics sent to the Central Institute for Economic Research no. 7605 from 23.II.1977, where the domestic income, by sectors and per capita, is shown in current prices and in comparable prices 1963.

The economic policy of the period was focusing on exceeding the socialist plans, on saving the production means, on discovering and putting to good capitalizing new growth resources etc. In the domestic income, calculated by the synthesis institutions, all these “efforts” were accumulated and expressed.

As the expression and the argument for economic growth in that period were the indicators expressed in absolute numbers but also the indexes which were easier to understand and that dominated the volume of the official statistics publications of that time; the effort was made in order to show their dynamic increase.

Thus, the data, as indicators and indexes, of the social product and of the domestic income increased, besides by the increase of the economic activities, also by periodically including some new categories of resources, which have not been considered previously due to objective or subjective reasons, which contributed to the growth of the domestic income.

We would like to mention some of these resources, the novelty of which is sometimes almost ridiculous: peasants selling their products in markets, the amateur film production, the increase of the value of the agricultural production with that of the products consumed by people and animals during harvest – fruits, animal feed etc., the animal feed resulted from the cooling of the crops, the grazing of the cattle on the side of the ditches, roads etc.

The biggest adjustment, after the ones in 1955 and 1966, derives from the action carried out in the synthesis institutions starting with 1970 to expand the area covered by the [22] domestic income, as well as to reassess some activities generating domestic income, until the end of the 70s[23].

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[22] Thus, new elements were included, among which: the activity of the units for agriculture (stations for the mechanization of agriculture, enterprises for the maintenance and exploitation of the irrigation system, veterinary clinics, centres to fight pests etc.); passenger transport and telecommunications serving the population; services in order to insure the operation of ports and airports; the activity of hotels and balneoclimateric enterprises; scientific research serving production; maintenance and current repairs performed on roads, bridges and streets from budgetary funds; food processing in school and hospital cafeterias; the activity of the workshops for washing, cleaning, painting and photo shops; home processing of purchased threads and fabrics etc. Also, some modification have been introduced due to the improvement of the assessment of some activities, especially those concerning: the production of the individual craftsmen; the construction of homes financed from the resources of the population and the construction works performed for free (called patriotic work); the agricultural production in the population’s households; the consumption of the agricultural products in the field.

[23] Until 1979, the extension of coverage area and the change of the assessment of some activities included in the domestic income were done twice, according to DCS-BDS-017/15-1979, as follows: in industry: the activity of the workshops attached to the communal popular councils, of the workshops for the maintenance and repair of material goods in the budgetary institutions, done with inhouse staff; the production of the workshops attached to the public schools, high schools and higher education institutions; the activity of the multiplication workshops from budgetary units; in constructions: workover and maintenance activities for the constructions built by private workers; in the foreign trade: sellling personal goods of the private merchants; in other sectors: the activity of the computing centres in the bugetary units, the film production of the amateur clubs. The way the foreign trade activity was included was also corrected, in order to accurately reflect the contribution of different sectors to the domestic income. In this respect, the balance of the price differences in the import-export activity, related to the

The biggest accumulations were made mainly in two stages: in 1970 and in 1974; these have increased the domestic income[24] by 34.7 billion lei per year, respectively a nominal growth of 8.7% until 1970 and 4.2% more in the next period until 1974, the real revenue increase from the production activity[25].

But the activity categories newly included in 1970, practically previously as well – 1950-1969- were generating a domestic income that was not recorded; thus, the data regarding the global indicator before 1970 remained unchanged – the number and dynamics serie in the official statistics has not been corrected retrospectively - the continuity and comparison of the data from the two periods has suffered.

As a result, in order to ensure an optimum comparison level, the data on the domestic revenue until 1970 were adjusted and balanced.

In order to make compatible the domestic income data from the two periods and to make them comparable as well, we have adjusted the figures for the period 1950–1970, balancing them with the share of the surplus of 8.7%, and for the period 1971–1974 by 4.2%. The second adjustment is related to the domestic income data for 1975–1979; this is calculated, as the *Statistical Yearbook* shows, at the prices on January 1st, 1977.

The sources mentioned above show that the domestic income after 1975 using the prices on the January 1st, 1977 is 3.8% higher than the one calculated using the prices of 1963.

As a consequence, in order to ensure the comparison we diminished the data for 1975–1979 by 3.8% in order to bring them to the level of the entire set, at the prices of 1963. The results of the adjustment are presented in Table Cc.

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resulted losses, was distributed to the sectors producing export goods (industry, agriculture, forestry, constructions, transport, tourism), proportionally to their share in the export of goods and services. The area covered by the social product and domestic income was extended with the insertion of some activities, not included before. (*Methodology for the determination of the social product and domestic revenue and proposals for its improvement*, March 1979).

[24] An official difference in the Yearbooks of Statistics, where for 1970 two sets of data about the domestic income are shown: 1970=210.1 billion lei using the methodology of the period 1950-1970 and 217.9 billions using the methodology of 1974 (*Romania's Yearbook of Statistics* 1990, p. 230).

[25] The effort of the administrative institutions to increase production and the domestic income, respectively, by adding new consumptions not included by most of the countries, like: the value of the vegetal and animal products consumed by the workers during harvesting and storage, the value of the animal feed resulting from the weeding out of the vegetal crops, of the animal feed on the side of water, roads, railways, which usually are not used or recorded in any country, as well as other such "surpluses" suggests the insistent action – coming from the top management of the country, to increase by all possible means the size of the domestic income and to prove the growth and the high development of the national economy. This can imply overestimates of the indicators, resulting also from various calculations of foreign authors of the Romanian domestic income from that period, calculations that decrease the size and the growth rate of the synthesis indicator by various percentages (see Marvin R. Jackson).

We want to mention that, by the adjustment, the dynamics of the domestic income is closer to reality, the growth between 1950 and 1979 being 40% lower than in the *Statistical Yearbook;* this shows, in 1979, compared to 1950, the base = 100, an index of the domestic income of 1,405%, while the domestic income index adjusted by us is of 996% in 1979, compared to 1950, table Cc.

In order to outline the major differences between the official data set of the domestic revenue and the real one, recalculated by us, we inserted the table below which shows the indexes for the entire period 1950–1979.

Table Cc

Domestic income in official and real indicators and indexes for the period 1950-1979

Years	Domestic income, current prices, Romania SY 1989[26]		Domestic income comparable prices 1963		Adjusted domestic income 1950-1979	
	billion lei	index	billion lei	index	billion lei	index
1	2	3	5	6	7	8
1950	34.2	100.0	34.2	100.0	50.8	100.0
1955	65.7	192.1	65.7	192.1	84.9	167.1
1960	91.7	268.1	91.7	268.1	108.1	212.8
1965	141.1	412.6	141.1	412.6	155.2	305.5
1970	217.2	635.1	204.5	598.0	245.4	483.1
1975	361.9	1058.2	349.7	1022.5	357.2	703.1
1979	499.3	1460.0	480.6	1405.3	505.8	995.7

Source: See the sources and notes of Table Cd.

[26] *Romania's Statistical Yearbook,* 1989, printed, not distributed. It can be found in the library of NIS.

Table Cd

The domestic income[1] adjusted to the extended coverage area, by production sectors for material services and goods, using the MPS methodology, in lei 1963, annual series, period 1950 - 1979

Years	Total adjusted domestic revenue mil. lei	Production of goods			Activities representing material services		
		agriculture, forestry, others mil. lei	industry mil. lei	Cons-tructions mil. lei	transport, telecom-munica-tions mil. lei	Trade[2] mil. lei	communal management, households, maintenance of roads and bridges, others mil. lei
1	2	3	4	5	6	7	8
1950	**50758**	24131	16957	2174	1087	5865	544
1951	**63567**	30219	20870	2935	1304	7478	761
1952	**61782**	26958	22175	3478	1739	6671	761
1953	**69807**	31740	24566	4348	2065	6218	870
1954	**70718**	30653	26632	3261	2283	7019	870
1955	**84895**	39132	29784	4674	2609	7718	978
1956	**71308**	25545	28153	5761	2826	8153	870
1957	**87286**	37936	31306	6087	2935	8044	978
1958	**83481**	30327	34675	6631	2935	7935	978
1959	**98813**	40436	38480	7718	3044	7935	1196
1960	**108043**	40654	45002	9348	3587	8148	1304
1961	**116584**	41958	50546	10218	4239	8319	1304
1962	**119765**	37067	57176	10761	4565	8783	1413
1963	**129462**	38806	63155	11087	5435	9348	1631
1964	**143157**	40436	71959	12066	5870	11087	1739
1965	**155224**	41089	81742	12718	6413	11414	1848
1966	**173599**	47611	90112	13696	7066	13049	2065
1967	**189280**	47176	101635	15762	7826	14707	2174
1968	**204296**	50763	110004	17827	8370	15049	2283
1969	**219788**	50219	124679	18696	8153	15541	2500
1970	**245401**	42610	147832	23914	13805	14088	3152
1971	**264807**	53504	154451	24035	13794	15992	3031
1972	**292743**	58729	172321	26961	15257	16131	3344
1973	**323137**	56535	200745	27797	17138	17264	3658
1974	**337147**	52300	217800	27300	17800	17947	4000
1975	**357128**	52525	232515	30394	20202	17355	4137
1976	**393362**	70803	243001	32516	21934	20779	4329
1977	**431738**	66474	265127	44444	23665	27410	4618
1978	**476360**	73208	288696	48004	28283	32397	5772
1979	**505843**	71092	313131	52814	26647	36098	6061

Note: [1]The data are adjusted starting from the series of the national income expressed in prices of 1963. We used the data of the national income in 1963 prices for the period 1950-1970. For the national income expressed in comparable prices of 1963, based on which we build the 1950-1979 series, we also added the net products of the maintenance activities for roads and bridges and communal management, not include in the national income in MPS (Statistical statements DCS-BDS no. 0190/1974). In the statistics, the national income column entitled "others" includes, in accordance with the 1980 *Statistical Yearbook*, the following activities: household industry, polygraphic industry, production of the cinema studios, waste collection etc. Taking into account that these activities could not decide between the production of goods and services, industry was included in the production of goods, after the estimated weight. The mentioned adjustments were made in the introduction to this section.

[2] In the sources, trade cummulates the data of the domestic and foreign trade, considered with the tax on product. While the domestic trade was generating a lot of domestic income, the foreign trade, especially for export, important losses were suffered. The net revenue in the foreign trade at the prices of year 1963 in mil. lei:

Years	mil. lei	Years	mil. lei
1950	+1831	1970	-11331
1955	+1979	1973	-19237
1960	+659	1975	-14609
1965	+828		

Calculated based on DCS-BDS: *The domestic income by branches and per capita 1950-1979*, file no. 832/1974; DCS-BDS, S. 119, Letter DCS no. 07605/25.II.1977, *Domestic income by sector in the period 1970-1975.*
Significant losses were generated by the export of goods, as a result of the difference between domestic and external prices. As an example, the data in the archive shows us the benefits and losses for the imported and exported products for the period 1955-1959:

Years	Overpricing differences for imports mil. lei	Underpricing differences for exports mil. lei
1955	+4989	-3056
1956	+4306	-3574
1957	+5417	-3484
1958	+6029	-5161
1959	+5974	-5876

DCS, Strictly confidential, 266/22.V.1962, The analysis of the domestic income of the SRR for 1950-1959.

Source: *Romania's Statistical Yearbook*, 1970-1981, 1990, 1991; *The social product, material expenditure and domestic income by sectors and per capita, 1950-1970* in prices of years 1950, 1955 and 1963. DCS-BDS, tables, document no. 027/1972.

In our subsequent calculations, for which we translated the domestic income into GDP (1950-1979) the prices of 1963 were determined for the entire period as comparable prices, total by resources according to table Cd.

b. The second essential operation on the global indicator for 1950-1979 is **the calculation of the net value of the activities included in the non-material services** and adding it to the net value of production and material services.

At a certain moment, these[27] were included in the statistics, not for the generation but for the use of the domestic income, especially since the indicator "national fund for economic and social development" started to be calculated.

According to the MPS methodology, the non-material services refer to the following activities: educational, social, cultural, financial-banking-insurance, scientific and geological research services, street, road and bridge maintenance services, communal and private

[27] Some of the services not included in the national income, which are mostly classified in non-material services, are presented in the joint consumption fund at the utilization of the national income: cultural services – theaters,operas, philharmonics, cinemas, amateur clubs, hygiene services – barber shops, cosmetics, etc.; commune and household management – sewerage, sanitation, public toilets, renting dwellings; tourism services, wear of the population's swellings, maintenance and repairs of the public and private dwellings, private transportation and CAPs, consumption of the institutions and organizations from the non-productive field, respectively of the social and cultural services – education, culture and art, health, physical education and sports, social assistance and administration (*Produsul social, cheltuielile materiale şi venitul naţional creat şi utilizat în anul 1973.* D.C.S.–B.D.S. nr.0189-1973, multiplicat 30.II.1974).

household services, the revenue assigned to the privately-owned homes, the remuneration of the household administration, defence and others.

In general, the main completion activities from the national accounts are included, which we will calculate[28] for the period 1950-1979. But we have corrected something here, namely we included the value of the communal and residential management services, as well as the road and bridge maintenance and repair services in the material services; these activities represent mainly, in terms of content, the consumption of materials and operate on material objectives, the unquestionable criteria being the material processes; we have a similar situation for the sectors of the material production – industry, constructions, agriculture etc. - maintenance and repair activities for roads, buildings, water supply units, electricity, sewage, gas supply etc. In the above-mentioned papers, the non-material services, in current and comparable prices, were around 11-12% of the gross domestic product of those years; however, the share of the non-material services compared to the domestic revenue, calculated in the MPS is higher, for sure.

Lacking accurate information about the non-material services, we have assigned them values based on the average of the their share in the domestic income; thus, the data calculated by the Central Directorate of Statistics, for years 1971-1973, respectively the resulted shares of the non-material services, were used to determine the absolute data of these services for the period 1950-1970, and the share of non-material services in the gross domestic product in 1980 was used for the period 1974-1979.

Regarding the non-material services during the period of the centralized economy, 1950-1989, it is important to remember that most of them were underestimated compared to our calculations of the GDP for the periods 1862-1947 and 1990-2010. The area covered by the non-material services in 1950-1989 has some particularities; part of the services - health, education etc. - were free of charge for the population; another part –banking and insurance services - with interests of 1-3% for loans – communal household, charged rent, has low calculation rates; the use of own dwellings represented 3% of the GDP in 1938, and only 1.3% in 1973. For the material services, we see the same phenomenon; in domestic trade, the goods went through two links: from the producers to the warehouses and from there to the retail stores. The official commercial discount of 10-13% and the benefits of 3-4%, as well as

[28] In current prices, which were slightly different from the comparable ones due to the stability of the prices in the 60s and 70s, the gross product of the non-material services for 1971-1973, represented 12%, 11.8% and 11.3% in the GDP. **Source:** Calculation of the Gross Domestic Product and of the national revenue for 1973, according to the UN methodology (preliminary data) DCS-BDS no. 0180, 1973. RD no.1679

the tax on the value added (VAT) 9-12% did not increase much the price of the products and added a low rate of added value.

The change in time of the size of the domestic income determines, thus, the modification of the volume of non-material services in the given structure, but, because of that, the calculations include a certain level of relativity related to their size.

In conclusion, the net revenue for 1950-1979 was added to the net value of the non-material services[29], calculated as shown.

c. The next important operation on the domestic income, in the MPS methodology, in order to obtain the gross domestic product, consisted in **calculating the fixed capital consumption in the economy, for the period 1950-1979.**

In the official statistics published until 1990, this data set is missing; however, indexes and shares were published. Only Romania's Statistical Yearbook, from 1990 and 1991, show retrospectively, in current prices, the value of the depreciation of the fixed assets, at certain intervals: 3.9 billion lei in 1950, 10.3 billion lei in 1960, 31.4 billion lei in 1970, 56 billion lei in 1980, 84.1 billion lei in 1985 and then every year until 1990, when this reached 100.5 billion lei. In 1980, when the Central Directorate of Statistics published the GDP, the fixed capital consumption in the gross domestic product of 61.4 billion RON contained also the depreciation in the non-material services group. With the heterogeneous data and in current prices, it was difficult to calculate the entire annual series of the fixed capital consumption, moreover its distribution by sectors to add it to the net product.[30]

However, the most detailed operations are in the statistic records presenting the conversion of the domestic income from the MPS methodology into the NAS one, drafted

[29] We wat to emphasize that the net value of the non-material services used for material production, which were included in the production costs, like net payments of bank interest, the balance of premiums and insurance damages, travelling expenses, garbage fee etc. that should be included in the intermediary consumption of the sectors, was deducted from the domestic income by the authors of the calculations of the gross domestic product (DCS-BDS 0190/1974, p. 5). Their share in the domestic income, calculated in the material production system was around 2%-2.2%.

[30]In the archived statistics that we were able to have access to, there is a set of information, data in short series, others separated, on the fixed capital consumption in the sectors of the national economy in various years. The first data series on the amortisation fund comes from the document DCS-BDS from 1974-474-S, called Data on the social product, material expenses and domestic income for the period 1950-1966, where we see, in a separate column, the amortisation of the fixed assets that are included in the material expenses, expressed in 1963-comparable prices, of course under material production, so without the amortisation of the fixed assets of the non-material services. Another source, of the same nature, from 1962 presents the amortisation, also in the MPS methodology, in 1955-comparable prices, for the period 1950-1959; the data is close to the data in th previous document. The following source, *The Domestic Revenue of the Socialist Republic of Romania for 1965*, in US dollars, – experimental calculation – (DCS-BDS no. 0831 from 1967) provides data on the amortsation in all the sectors of the national economy and converts, from lei to dollars, the amortisation of the fixed assets in the sectors of the material services and production and those of the non-material services. The data in lei show the composition of the amortisation fund by sectors, in 1963 – comparable prices.

based on the research from 1970-1975, of the National Institute of Statistics. Here, the coverage area of the gross domestic product was determined, by calculating the non-material services and the fixed capital consumption in order to add them to the net income. The depreciation is presented in this way, in these documents, for all the branches for the period 1970-1973. The statistic records with the indicative 0180 and 0193 include the calculation of the macroeconomic indicators, the domestic income based on the MPS method, the net product, the fixed capital consumption and the gross domestic product based on the national accounts methodology.

Besides these main sources, the Centralized Financial Plan of the Socialist Economy for 1980 – developed by the Ministry of Finance – shows as a resource of the economy, the depreciation of the productive fixed assets, in current prices, for 1979. Important are also the depreciation norms, by sectors and subsectors, presented in the paper "Proposals for the re-assessment of the fixed assets", from 1978, of the Institute of Finances, cash flow and prices. These norms, from which we give a few examples,[31] have been applied in the periods 1951-1953 and 1954-1969.

Using the information and the above data and some indexes from the Statistical Yearbooks of that period, we have compiled the series in absolute figures, in comparable million lei, of the fixed capital consumption in the category of material services and production; there where the data was not available – for a few years – we calculated it based on the available data and its share in the fixed assets. For the fixed capital consumption from non-material services we used the data from years 1965 and 1971-1973, from the above-mentioned sources, where the depreciation by sector is specified, in absolute figures, 1963 comparable prices.

Thus, with the share of depreciations in the domestic income in 1965, we calculated by extrapolation the fixed capital consumption in billion lei for the period 1950-1970, and with the average share of the depreciation in the domestic income for 1971-1973, calculated

[31] Depreciation norms, in annual percentages, from the value of the fixed assets of the sector:

Sector	**1951-1953**	**1954-1969**
Coal	6.7	6.7
Ferrous mines	5.5	7.3
Electricity	4.2	5.3
Metallurgy	4.1	5.3
Chemicals	5.0	7.0
Electrotechnics	3.6	4.7
Cement	4.0	5.0
Wood	4.8	6.0
Textiles	3.5-4.2	4.7-5.6
Railroad	17	17

by the sources, we determined the fixed capital consumption for 1971-1979. We did this because in 1970 and in the following years, as it was mentioned, the area covered by the social product and by the domestic income was extended and relocations of prices took place. As a consequence, the fixed capital consumption was calculated with greater or lower accuracy, for the period 1950-1979, per total and by branches, at the same comparable prices as those of the domestic income.

The annual data of this consumption were added to the net incomes from the material production, material services and non-material services, by branches, obtaining in the end, through the simplified method, the gross value added for the three sectors for the period 1950-1979.

In terms of the tax on product – the added value tax - back then called the tax on the movement of goods - and of the customs duties, these were calculated and added to the gross value added. What's interesting is that these do not appear in the statistics of the gross domestic product from 1980-1989.

Another issue is that of **subsidies and losses in the centralized economy**; there were special accounts 'planned losses", subsidies for the foreign trade etc. increasing from one period to another, which we deducted from the gross value added.

At the end of converting the domestic income into gross domestic product, in the comparable currency 'lei **it is necessary to transform the amounts from lei into USD 2000.** In this respect, we did not use the exchange rate, as this was not the proper one; the rationales are known so we won't insist on them.

The most frequently used method and with the results the closest to the economic reality is that of the purchasing parity power of currencies, studied and applied by the international official institutions under various international comparison programmes. The calculations for the conversion of the long term series of the gross domestic product from the national currency, lei, into international USD, based on the purchasing power parity method are explained in sections **A** and **B.** The calculation methods in order to obtain a GDP expressed in USD 2000, for the period 1950-1979, are detailed in the Methodological Introduction in the following pages of this Section C.

The result of calculating the GDP for 1950-1979 is shown, thus, in the 11 statistical statements that follow. We mention that the presentation order of the table is reversed to their chronological drafting order; respectively, first we present the final synthesis tables and then the analytical ones, which were the basis for the calculation of the synthesis ones. The statistic synthesis statements present these indicators, as a rule in two instances, in tandem, the first one, in (six) averages of the years –four-five years-, in a centralized and concise form, and the second one in annual series of the three examined decades. We mention that some partial data are expressed in the tables with a difference of one unit resulting from rounding up the amounts by a decimal factor after the point.

As a last part of the introduction to section C we **summarized** the global indicators for the period 1950-1979 from the perspective of some main aspects of dynamics and structure; first of all, the gross domestic product expressed in comparable RON 1963, with which all the components were aggregated.

Table Ce

The gross domestic product, total and per capita, in dynamics, in lei 1963, selected annual averages, for the period 1950-1979

Average of the years	**Total GDP**		**GDP per capita**	
	mill. lei	**%**	**thousand lei**	**%**
1	**2**	**3**	**4**	**5**
1950-1954	87.3	100	5.2	100
1960-1964	171.2	196.1	9.2	176.9
1970-1974	398.8	456.8	19.3	371.2
1975-1979	551.0	631.2	25.4	488.5

Source: Based on the data in table C1

The gross domestic product is presented through the annual averages, which make the differences more homogeneous, generated especially by the variations of the value added in agriculture, due to the weather conditions. For a more concentrated presentation, we took the averages of four periods in the interval of three decades. The first thing noticed and the most important is the approximate doubling of the GDP in each decade; per total, between the average of years 1950-1954 and 1975-1979, this has increased 6.3 times; but if we correlate with the population, which between 1950-1979 increased by 35%, the gross domestic product per capita increased only 4.9 times. In absolute figures, the new value generated per capita, between the averages of the years, at the beginning and at the end of the period, increased from 5.2 thousand lei to 25.4 thousand lei.

However, the evolution, by resources, of the value added outlines considerable differences and discrepancies between the dynamics of the value obtained from the production of goods and that of services, as well as in the composing branches. The following table uses the annual data at 5-year intervals.

Table Cf

The gross value added based on the production of goods and services, by sectors, in dynamics, lei 1963, selected years, for the period 1950-1979

Years	Total	In the production of goods, 1950 = 100					In services 1950=100		
		total		agri-culture	in-dustry	construc-tions	total	mate-rial	non-material
	billion lei	billion lei	%	%	%	%	billion lei	%	%
1	2	3	4	5	6	7	8	9	10
1950	**66.3**	48.1	100	100	100	100	18.2	100	100
1955	**110.3**	81.3	170	162	173	206	29.0	152	168
1960	**140.9**	105.9	220	171	259	397	35.0	184	202
1965	**204.8**	152.2	317	178	459	546	52.6	283	296
1970	**344.8**	240.1	499	188	817	1036	74.7	418	402
1975	**442.2**	335.8	698	230	1250	1306	106.4	551	623
1979	**630.3**	473.1	983	308	1666	2195	157.2	869	856

Source: Calculated based on tables C7, C8 and C10.

Following the dynamics of the two sectors, goods and services for 1950-1979, we note a higher increase in the production of value in the goods sector, by 9.8 times, compared to the services one, by 8.6 times, which appears like a deviation from the trend of the contemporary developed economies to have a higher increase of services, following the increase of the social division of labour. The existence itself of an economic sector like non-productive services, which, based on the socialist theory did not contribute to the production of value, determined the economic policy of the state to underestimate and to limit various services for the population to the disadvantage of its standard of living, in order to mobilize the resources to force the production of goods.

The phenomenon, specific to the economies of communist countries, could also be a result of the bureaucracy reduction in the centralized state system, to the way the prices were formed – minimum links between production and consumption – prices fixed below the costs etc., but also a result of practicing some categories of services free of charge or with preferential, not taxed prices – like medical services and education at all levels, dorms and canteens (provided free of charge), spa treatments, symbolic rent for the state housing etc. Some of these, correlated also with the major imbalances in the economy, accumulated and generated, in the ninth decade, serious turmoil for the social and economic system.

In the area of the goods production, of the three basic sectors, the dynamics of creating value records considerable differences; while agriculture (that received annual investments from 0.7 billion lei in 1950 to 27.2 billion lei in 1980) increased its production 3.1 times only, while the industry increased it 16.7 times, and constructions 22 times compared to 1950.

The forced industrialization process, which generalized the machinery instead of manual techniques in two out of the three sectors of the goods production (agriculture and constructions) determined higher growth rates of the production of value added; but the poor production of value added in one of the basic sectors of the economy – agriculture - revealed big lacks of efficiency in the field. However, if we look at this problem from the contribution perspective, i.e., of its share in the total value added, as it is presented in the next table, the conclusions seem optimistic.

As for the services activity, the two subsectors, conventionally separated into material and non-material, their dynamics were similar.

On the other hand, the contribution of the two categories of resources, of the production of goods and services, has not recorded, in these three decades, significant changes: an increasing trend of the share of the goods sector value, from 72.5% to 76.1% and a corresponding decreasing trend of the participation of the services sector from 27.5% to 23.9%, following the more accelerated growth rate of the production of the first sector.

In the structure of the production of services value, the ratio between the material and non-material ones does not show sensitive deviations, the main share, an average of 50-54% belonging to the material ones and the lower share, 46-50%, to the non-material ones; we believe that the explanation resides in the arguments above mentioned.

Otherwise, the change in the shares of the value added in the goods production sectors is spectacular; the agriculture, which in 1950 contributed with most of the value, around 52%, decreased in three decades to 16.4% in total gross value added; the industry and constructions went in the opposite direction; with 42.2% and 5.4% in 1950, the two branches increased visibly their share going up to 71.6% and 12% in 1979, respectively.

The macroeconomic synthesis indicators, presented in the following set of tables, decodes, via the averages of the years and annual series, the main results of the development and transformation processes of the Romanian economy during this period of growth, followed from 1980 and until 2010 by another period, also of three decades, but with crises, transition, radical restructuring and the cancellation, to a great extent, of the previous growth, of substantial loss from the wealth of the country, from the accumulated economic patrimony.

Introduction to the conversion of the GDP from the national currency, lei, in international USD PPP 2000, for the period 1950 - 1979

The gross domestic product for the period 1862-1947 was calculated in comparable prices 1913 and converted in USD PPP 2000 based on the method showed in the Introduction to Section B of the study.

For the next stages, since 1950 until 2010, the official statistics provided, as it was shown, data on the domestic revenue in the MPS -1950-1990 and on the gross domestic product for 1980-2010.

The operations for the conversion of the domestic income according to MPS into GDP based on the NAS and for the calculation of the GDP from current prices into comparable prices was done separately for the two Sections, C and D; then, we had to convert the two series into the international comparable currency – USD PPP 2000.

The specialized literature, published by international financial and economic institutions, universities and research centres, by various calculation and conversion methods, provides data with different levels for Romania’s GDP, in absolute figures and per capita, expressed in the US currencies of the different years –1975-2000.

The calculation methods in the combined or purchasing power parity methodology, being drafted in a complicated way, cannot be decoded, checked and applied by the author in order to determine the GDP in an international monetary reference for Romania.

The Programme for International Comparisons, as well as the European Comparison Programme, in all their rounds, required complex methodologies and the effort of hundreds of specialists.

Thus, for the conversion of Romania's GDP from lei into USD PPP for the period 1950-1979 we had two solutions: the first, to use a convertor from lei into USD for the GDP, calculated at the level of the domestic income from 1965 by the General Directorate of Statistics, at the purchasing power parity of the two currencies[32]; the second solution was to use the convertor developed in the third round, in 1975, of the International Comparison Programme, in which our country was also involved and where it provided the results of its calculations according to Romania's Economic Memorandum, addressed to the International Monetary Fund, related to its relation with this institution.

A competent analysis of Romania's GDP and its conversion from lei to USD at the purchasing power parity was done, for the period 1970-1980, in this paper, under the umbrella of the World Bank, by Marvin R. Jackson (National Accounts and Estimation of Gross Domestic Product and its Growth Rates for Romania, Washington, 1985), which uses the information of the third round –1975– of the International Comparison Programme and of Romania's Economic Memorandum.

The convertor resulted for the GDP prices is of 8.80 lei for 1 USD at the purchasing power parity.

We chose to convert the GDP from lei into USD, based on the convertor of the third round of the ICP from 1975, as this solution offered calculations from a period closer to the Romanian economic reality and which implicitly reflect a stage and a matured structure of the social and economic body.

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[32] That study was drafted by the NIS with the support of the economic ministries, of the Ministry of Foreign Affairs, and presents the calculation methodology, the minutious operations performed and the obtained results. It is a valuable study of the calculation of the ratio leu-dollar, based on a Romanian model of the purchase power parity.
The lei-USD parity was calculated at the level of the year 1965 with the help of the prices of hundreds of products and categories of products from Romania and the US, using a system of grouping and balancing of the economic sectors. In the study's summary, the ratio of the purchase power of the two currencies is different, based on the economic coverage area included in the calculation. For the entire domestic income, with the production method, 1 dolar was 12.34 lei, and based on the domestic revenue used, it was of 13.13 lei; for the consumption fund –with a share of 75% from the product mass– 1 US dolar = 11.47 lei, and for the accumulation fund, it was of 23.37 lei; we estimate that the lei-dollar price ratio, according to the Romanian calculations is close to the ratio used by the International Monetary Fund. The European Department of the IMF, in an internal document from 30.11.1965, based on the drafted research and compared to the exchange rate practiced by Romania, proposed an exchanged rate of 13.60 lei for 1 US dollar, in order to calculate the domestic income of Romania in dollars PPP. It results that, according to the Romanian estimation, the exchange rate for the dollar represented 91% of the one proposed by the IMF.
In terms of the cost of living, the ratio leu-dollar for the monthly expenses of the consumer's price basket was, per total, of 8.10 lei; of which food products 10.40 lei=1 dollar; non-food products 17.40 lei=1 dollar and for services 3.70 lei = 1 dollar. For the entire consumption fund, in the most favourable version, using the same categories, 1 dollar was the equivalent of : per total 10.40 lei; for food products 9.90 lei; for non-food products 16.60 lei and for services 7.40 lei. DSC, *The Domestic Income of the Socialist Republic of Romania for 1965*, in US dollars, - experimental calculation DCS-BDS no.0831. The Addendum of the Volume, the Romanian version, presents the main excerpts of that research.

We underline that the purchasing power parity is presented, in the quoted study, for various categories of products and activities, as well as for the gross domestic product.[33]

The same USD-lei convertor for the purchasing power parity of the year 1975 is shown by the study of Angus Maddison – *Monitoring the World Economy, 1820-1992* – OECD,1995[34], convertor that was used by the author to convert Romania's GDP also in USD PPP 1990 using the depreciation coefficient of the US GDP dollar between 1975 and 1990.

However, we mention that irrespective of the PPP lei-USD convertor used, irrespective of the period, 1965 or 1975[35] or another one, through the accepted and used methodology, this is updated using the dollar depreciation coefficients from one period to another. In the calculation of converting the GDP from comparable lei into PPP USD, the problem was in applying the convertor in 1975 to the GDP series expressed in comparable prices of 1975. In this respect, the GDP in 1950-1979, which was calculated in comparable lei 1963, was brought to the level of the comparable prices 1975, weighting by 8.6%, the growth rate of the indicator prices during 1963-1975. The next operation consisted in relating the GDP series in comparable prices 1975 to the convertor 8.80 RON for one USD at the PPP. As the GDP comparison for all three stages –1862-1947, 1950-1979 and 1980-2010– is done with international dollars 2000, also the series for 1950-1979, expressed in USD 1975 must be updated at the level of the USD of 2000. This is done by weighting the GDP data series in

[33] Thus, for 1 dollar in 1975 the price ration in Romania and the US was in lei compared to dollar: food products 7.60 lei to 1 dollar; clothing and footwerar 13.30 lei; rent 2 lei; furniture 15 lei; medical care 2.40 lei; transport and communications 19.20 lei; education and leisure 9.10 lei; constructions 8.60 lei; long term use goods 22.20 lei; guvernmental consumption 6.70 lei to 1 dollar. As aggreggates, according to the ICP concept: the consumption fund was 7.60 lei to 1 dollar; accumulation 12.90 lei, guvernmental consumption 6.70 lei and the GDP 8.80 lei to 1 dollar. According to NAS: consumption was 8.80 lei to 1 dollar; accumulation 12.9 lei, guvernmental consumption 4.30 lei and the GDP 8.80 lei to 1 dollar. The data comes from table no.45, of the mentioned research, Marvin R. Jackson.

[34] Table C 12a ICP –1975 for some European countries, the equivalence with ppc of the national currencies for one dollar is shown:

Hungary	12.3
Poland	14.3
Romania	8.8
Yugoslavia	11.7

The Romanian currency proves to have the best ppp ratio in dollars, amongst the four East-European countries. OECD, Angus Maddison, *Monitoring the World Economy, 1820-1995*, Paris, 1995, p. 177.

[35] The difference between the convertor calculated by the institution of statistics in Romania in 1965, of 12.34 lei=1 US dollar ppp (or the one proposed by the IMF of 13.60 lei=1 dollar) and the one calculated by the ICP in 1975 of 8.80 lei=1 dollar ppp, is only apparent. In reality, the product prices in the US between 1965 and 1975 have increased a lot, from 100 to 173, especially after the oil price shock and the suspension of the dollar convertibility, which inflated, while the prices in Romania, under the absolute control of the State, increased by 6-8% only, during the same period. Calculations show that the convertor from 1965, of 12.34 lei to 1 dollar ppp, compared to the one from 1975, of 8.80 lei to 1 dollar ppp, represents an increase in the purchase power of the Romanian currency, of 71%, respectively a close difference in the US price increase from the decade 1965-1975. These correlations show that, if you start from the convertor of any year, if this was calculated correctly, and use the price coefficient –of the US GDP– as deflator, you get to an amount close to the convertor for that year.

USD 1975, with a depreciation coefficient of the USD until 2000. We calculated this coefficient based on the depreciation index of the US GDP prices from the reference paper of Samuel H.Williamson, Six Ways to Compute the Relative Value of a U.S. Dollar Amount, 1774 to present. Measuring Worth, 2008.[36]

We note that, according to the practice of the recent methodology, deflating values, respectively the global indicators in currency, including in dollars, is no longer done by using the consumption price index, but by using the US GDP price index. We used this deflator and coefficient, whose magnitude is different from the one of the US consumption price index.[37]

Thus, the coefficient used to balance the GDP series 1950-1979 shown in dollars PPP 1975, was of 2.63 in order to reach the GDP series in dollars 2000.

After these compatibility operations, the gross domestic product is shown in the final statistic synthesis statements of the period 1950-1979, in absolute figures, per total and per capita, and in indexes, being able to ensure, through the presentation in USD PPP 2000, the continuity of the previous period –1862-1947 and of the following period 1980-2010.

[36] http://www.measuringworth.com/uscompare/

[37]

	2000	**1995**	**1990**	**1985**	**1980**	**1975**
US GDP price index	100	98.12	81.61	69.72	54.06	38.01
US consumption price index	100	88.5	75.90	62.49	47.48	31.27

Table C 1

Summarized statistical data

The gross domestic product, *total and per capita*, in lei 1963 and USD PPP 2000 the annual averages, period 1950-1979

Averages of the years	GDP lei 1963 mil.	GDP lei 1975[1] mil.	GDP USD 1975[2] mil.	GDP USD 2000[3] mil.	Index	GDP per capita USD 2000	GDP per capita index
1	2	3	4	5	6	7	8
1950-1954	87280	94786	10771	28375	100	1700	100
1955-1959	122634	133180	15134	39869	140.5	2241	131.8
1960-1964	171182	185904	21125	55653	196.1	2977	175.1
1965-1969	260530	282935	32152	84700	298.5	4350	255.9
1970-1974	398800	433097	49216	129653	456.9	6270	368.8
1975-1979	550965	598347	67994	179123	631.3	8264	486.1

Source: 1 see Table C2.

Note: [1],[2],[3]: see notes 1, 2, 3, from Table C2.

Summarized statistical statements **Table C 2**

The gross domestic product, *total and per capita*, in lei 1963 and USD PPP 2000, annual series, period 1950-1979

Years	GDP lei 1963 mil.	GDP lei 1975[1] mil.	GDP lei 1975[2] mil.	GDP USD 2000[3] mil.	Index	GDP per capita	
						USD 2000	Index
1	2	3	4	5	6	7	8
1950	67352	73144	8312	21897	**100.0**	1342	**100.0**
1951	86307	93730	10651	28059	128.1	1704	126.9
1952	86060	93461	10621	27979	127.8	1682	125.3
1953	96963	105302	11966	31523	144	1871	139.4
1954	99718	108294	12306	32419	148.1	1899	141.5
1955	123342	133949	15222	40099	183.1	2315	172.4
1956	107299	116526	13242	34884	159.3	1994	148.5
1957	127635	138612	15751	41495	189.5	2327	173.3
1958	119798	130101	14784	38947	177.9	2157	160.7
1959	135095	146714	16672	43921	200.6	2410	179.5
1960	148160	160902	18284	48168	220	2617	194.9
1961	160679	174498	19829	52238	238.6	2813	209.5
1962	166393	180702	20534	54096	247.1	2896	215.7
1963	181441	197045	22391	58988	269.4	3135	233.5
1964	199237	216372	24588	64774	295.8	3422	254.9
1965	215687	234236	26618	70122	320.2	3685	274.5
1966	239941	260576	29611	78007	356.3	4075	303.6
1967	263204	285840	32482	85570	390.8	4437	330.5
1968	282946	307279	34918	91988	420.1	4664	347.4
1969	300870	326745	37130	97815	446.7	4888	364.1
1970	330941	359402	40841	107592	491.4	5312	395.7
1971	355482	386054	43870	115570	527.8	5646	420.6
1972	400937	435417	49479	130348	595.3	6308	469.9
1973	451218	490023	55684	146695	669.9	7043	524.6
1974	455423	494590	56203	148062	676.2	7041	524.5
1975	465719	505771	57474	151409	691.5	7127	530.9
1976	517380	561875	63849	168205	768.2	7843	584.2
1977	548462	595630	67685	178309	814.3	8233	613.3
1978	599123	650647	73937	194780	889.5	8912	663.9
1979	624139	677815	77024	202913	926.7	8957	667.5

Source: Table C4; World Bank, Marvin R.Jackson, *National Accounts and Estimation of Gross Domestic Product and 1ts Growth Rates for Romania*, Washington, 1985; Samuel H.Williamson, *Six Ways to Compute the Relative Value of a U.S. Dollar Amount, 1774 to present. Measuring Worth*, 2008.

Note: [1] The depreciation of the GDP lei from 1963 until 1975 was of 8.6%, figure used to convert the GDP from comparable prices 1963 to prices 1975.

[2] According to the Economic Memorandum of Romania 1983 and to the International Comparison Programme round III 1975, the purchasing power parity of the USD in the GDP calculation was of 8.80 lei = 1 USD. As a consequence, the GDP series transformed in comparable prices 1975 was converted to USD PPP 1975 dividing it with the convertor 8.8.
[3] The GDP in US PPP 1975 was converted into USD 2000, multiplying it with the depreciation coefficient of 2.63 of the US GDP USD for 1975-2000, calculated according to Samuel H. Williamson.

Introduction to the calculation of product taxes, the estimation of subsidies and losses in the national economy for the period 1950 – 1979

During the conversion of the domestic income (MPS) into the gross domestic product, it is necessary to adjust the value at the level of the supplier's cost to the level of the market prices. At the same time, we need to investigate the amount of the gross value added, taking into account the particularities of the centralized-planned economy, during that period in Romania. Here, the planning mechanisms imposed the strict control of prices in order to ensure cost stability and the balance of the connection between branches and sectors. For this, by various leverages –regularization taxes, subsidies, planned losses etc., they tried to maintain and bring the prices to the planned level. A major problem generating great imbalances in the size of the generated and distributed revenues were the foreign economic relations, the exchange of goods and services with the external market; irrespective of the level of price where the export goods were produced, they were sold normally, at the price of the external market; hence, due to the internal costs due to a lower national work productivity and intangible salaries, there were big discrepancies; many of the internal costs, especially for the manufactured products, were higher, over the world average price, the export generating significant losses, expressed also in the recovery exchange rate lei-USD. In its turn, the import of some categories of products was more expensive; for example, for some raw materials – crude oil, ore etc.: those obtained in the country from natural resources and without rent, transport and taxes, etc. had lower prices than the foreign ones. But the imported products had to enter the domestic economic circuit at a compatible or domestic price in order not to disturb the subsequent chain of the planned costs.

In all these conditions, the state was allocating subsidies, was planning losses that were taken over by the budget; then the various imbalances in the economy generated losses due to the shortages in the technical and material procurement, delayed commissioning of some planned production facilities etc., which were passed on in the economy's branches.

Thus, as the complexity of the economy was increasing, the rigid mechanisms of planned adjustment of the Romanian economic system did not manage to prevent and not to solve, due to the lack of a market reference, all the discrepancies occurred. As a result, almost proportional with the increase of the economy's potential and of its production, the losses due to negative processes were bigger.

The access that we had to the archive sources[38] facilitated the estimation of the size of the subsidies and losses in the economy in the seventh decade. These sources, strictly secret, in limited copies, 20-30, only for the leaders of the party and of the state, showed, in statistic data and analyses, not only the fulfilment of the economic and financial plan, but also many difficulties, shortages, even serious gaps in the economy, mentioning also some of the causes generating them.

The one who will investigate and draft a history of the evolution of the Romanian economy during that time cannot carry out a survey and properly present it without consulting such archived information, crucial in order to know the realities, very different from the reports, the triumphant presentation and the official figures of that time.

The data series that we calculated and estimated come from the Statistical Yearbooks– product taxes – and from the documents mentioned in the archive – subsidies and losses that were not published. For the last two indicators, in some years, the missing data were obtained by statistic computing, interpolations, ratios etc. In some of the analysed documents, in certain cases – like the export or import deficit – the subsidies were considered losses or the other way around; for our calculations, both of them are deductions from the tax on product. However, what is certain is the growth of subsidies and losses, with significant annual variations, which was faster than the value generated in the three decades; in 1950, the subsidies and losses were of 7.5 billion lei, and the taxes and duties on products of 8.5 billion lei, exceeding by 12% the first ones; in 1979, it was the other way around, the subsidies and losses were of 47 billion lei, 6.3 times more than the reference year, the share of losses increasing in the official domestic revenue from 7.2%, in 1950, to 10% in 1979.

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[38] Among these we mention the extensive studies periodically performed by the Ministry of Finances, by other official central institutions: *The Analysis Based on the Balance Sheet of the Economic and Financial Results*, annual paper from the period 1970-1988; the report on the analysis based on the balance sheet of the economic and financial results from the period 1977-1980; the centralized financial plan of the national economy 1980-1984; Reports on the General Account for the ending of the financial year, 1978-1983; the State Budget of the Socialist Republisc of Romania, 1980-1986; *Achieving the International Economic Cooperation Plan*, semestral, annual paper, 1982-1986; *Analysis of the Domestic Income of the Socialist Republic of Romania*: *for 1950-1959*, etc.

The gross domestic product[1] after operations on the gross value added, in lei 1963, annual averages, period 1950 - 1979

Averages of the years	Gross value added mil. lei	Taxes on product and customs duties mil. lei	Subsidies and losses mil. lei	Gross domestic product col.2+3-4 mil. lei
1	2	3	4	5
1950-1954	83139	12779	-8638	87280
1955-1959	112565	16319	-6250	122634
1960-1964	162392	22366	-13576	171182
1965-1696	247924	33617	-21011	260530
1970-1974	371526	52063	-24789	398800
1975-1979	540880	46849	-33764	550965

Source: [1] Calculated based on Table C4.

Summarized statistical data **Table C 4**

The gross domestic product[1] after operations on the gross value added [2],

in lei 1963, annual series, period 1950 - 1979

Years	Gross value added mil. lei	Taxes on products and custom duties mil. lei	Subsidies and losses mil. lei	Gross domestic product col. 2+3-4 mil. lei
1	2	3	4	5
1950	66300	8510	7458	67352
1951	82937	11337	7967	86307
1952	81618	13465	9023	86060
1953	91525	15104	9666	96963
1954	93314	15480	9076	99718
1955	110248	17248	4154	123342
1956	96262	15880	4843	107299
1957	115735	17087	5187	127635
1958	111567	15970	7739	119798
1959	129011	15409	9325	135095
1960	140887	18015	10742	148160
1961	152675	20163	12159	160679
1962	158236	21733	13576	166393
1963	171473	24961	14993	181441
1964	188687	26960	16410	199237
1965	204813	28701	17827	215687
1966	227788	31397	19244	239941
1967	249595	34270	20661	263204
1968	268840	36184	22078	282946
1969	288583	37531	25244	300870
1970	314824	47522	31405	330941
1971	337031	52353	33902	355482
1972	371008	53849	23920	400937
1973	406965	57373	13120	451218
1974	427804	49219	21600	455423
1975	442185	49234	25700	465719
1976	496225	52495	31340	517380
1977	542040	37372	30950	548462
1978	593695	39152	33724	599123
1979	630254	40993	47108	624139

Note: [1]Data according to Table C5.
[2] See the notes in tables C5, C8 and C11. There was no adjustment for the production from banking services. This one was not included in the calculation of the domestic income, according to the material production system, from which we started to determine the gross domestic product; and for the calculation of the non-material services, at the account of the financial banking services, the archive sources used for operations (see the sources of table C12), due to the lack of information (the balance between the cashed and paid interests) the necessary data were not presented. Moreover, we must keep in mind that this balance in the state economy was reduced –by 1-2%- probably in order to cover the banking management expenses and not to gain profit. The proof for this is the share of the entire value added from the banking system which was only 1.6% of the GDP in 1970.

Summarized statistical data

Table C 5

The taxes on product – on the movement of goods (ICM)- and customs duties, subsidies and losses in the national economy in lei 1963, annual series for the period 1950 – 1979

Years	Total tax on the movement of goods I.C.M. [1] customs duties, others Col.3+4+5 mil. lei	Tax on product			Subsidies mil. lei	Losses[7] mil. lei	Tax on product minus subsidies and losses mil. lei
		I.C.M. to the central[2] budget mil. lei	I.C.M. to the local[1] budgets mil. lei	customs duties[3] mil. lei			
1	2	3	4	5	6	7	8
1950	8510	8510	-	-	5090[5)]	2368	1052
1951	11337	11337	-	-	5175[5)]	2792	3370
1952	13465	13465	-	-	5147[5)]	3876	4442
1953	15104	15104	-	-	5452[5)]	4214	5438
1954	15480	15480	-	-	4659[5)]	4417	6404
1955	17248	17248	-	-	1130	3024[4)]	13094
1956	15880	15880	-	-	1300	3543[4)]	11037
1957	17087	17087	-	-	1712	3475[4)]	11900
1958	15970	15970	-	-	2586	5153[4)]	8231
1959	15409	15409	-	-	3460	5865[4)]	6084
1960	18015	18015	-	-	4334	6408	7273
1961	20163	20163	-	-	5208	6951	8004
1962	21733	21733	-	-	6082	7494	8157
1963	24961	24961	-	-	6956	8037	9968
1964	26960	26960	-	-	7830	8580	10550
1965	28701	28701	-	-	8704	9123	10874
1966	31397	31397	-	-	9578	9666	12153
1967	34270	34270	-	-	10452	10209	13609
1968	36184	36184	-	-	11326	10752	14106
1969	37531	37531	-	-	13944	11300[4)]	23576
1970	47522	40544	6978	-	17505	13900[4)]	30003
1971	52353	44026	8327	-	16402	17500[4)]	35934
1972	53849	45086	8763	-	13809	10111[4)]	29929
1973	57373	48046	9327	-	6520[4)]	6600	44253
1974	49219	46007	3212	-	9800[4)]	11800	27619
1975	49234	42136	5788	1310	11100	14600[4)]	23534
1976	52495	44947	6018	1530	13900	17440	21155
1977	37372	32481	3081	1810	21550	9400	6422
1978	39152	34400	2722	2030	13000	20724[6)]	5428
1979	40993	35674	2869	2450	31600	15508	-6115

Source: *Romania's Statistical Yearbook* 1966, 1971, 1976, 1981; *The analysis of the domestic income of the Socialist Republic of Romania in 1950-1979*; The Ministry of Finance – works classified as –secret; DCS –Special Bureau 22.V.1963; The State Budget of the Socialist Republic of Romania, 1969-1981; strictly secret, *The basic balance sheet analysis of the financial and economic results*, annual paper from the period 1970-1988; The centralized financial plan of the national economy, for 1980-1984, etc.

Notes: **1.**The tax on the movement of goods (I.C.M.), tax similar to the VAT, but with differences in terms of content, during various periods; starting with 1970, it was also charged for the local budgets at different quotas. **2.** Until 1955, I.C.M. covered all commodities; after 1955, it was applied only to the consumption goods; the production means were exempted in order to reduce their production costs. **3.** The customs duties were applied to the import of commodities, after the enforcement of the custom fee adopted in 1974. **4.** Only for foreign trade; the data for the other branches were not available. The great variation in the different years of the amounts representing losses, confirms also the lack of information in some periods. In general, the data for this position are certainly underestimated. **5**. Subsidies through lower prices for food products and clothing distributed based on variation cards until 1954 and discounts for the prices of the products sold through "*economat stores*" (stores with lower prices). **6.** The only planned losses that we were able to discover from the available sources. **7.** The quoted sources also show, as losses in the 70s, the annual damages to the public wealth, between 600 mil. lei and 1200 mil. lei.

Summarized Statistical data

Table C 6

The total and structure gross added value, according to the production areas, in lei 1963, annual averages,[1] period 1950 - 1979

Averages of the years	Total gross added value		Production of goods		Production of services	
	mil. lei	%	mil. lei	%	mil. lei	%
1	2	3	4	5	6	7
1950-1954	83139	100	60418	72.7	22721	27.3
1955-1959	112565	100	82221	73.0	30344	27.0
1960-1964	162392	100	121153	74.6	41239	25.4
1965-1969	247924	100	186179	75.1	61745	24.9
1970-1974	371526	100	285214	76.8	86312	23.2
1975-1979	540880	100	408179	75.5	132701	24.5

Source: [1] Calculated based on the data from Table C7.

The total and structure gross added value, according to the production sectors[1], in lei 1963, annual series, period 1950 - 1979

Years	Total gross value added		Production of goods		Production of services	
	mil. lei	%	mil. lei	%	mil. lei	%
1	2	3	4	5	6	7
1950	**66300**	100	48089	72.5	18211	27.5
1951	**82937**	100	59948	72.3	22989	27.7
1952	**81618**	100	58959	72.2	22659	27.8
1953	**91525**	100	67372	73.6	24153	26.4
1954	**93314**	100	67720	72.6	25594	27.4
1955	**110248**	100	81221	73.7	29027	26.3
1956	**96262**	100	68068	70.7	28194	29.3
1957	**115735**	100	84634	73.1	31101	26.9
1958	**111567**	100	81101	72.7	30466	27.3
1959	**129011**	100	96080	74.5	32931	25.5
1960	**140887**	100	105874	75.1	35013	24.9
1961	**152675**	100	114570	75.0	38105	25.0
1962	**158236**	100	118211	74.7	40025	25.3
1963	**171473**	100	127386	74.3	44087	25.7
1964	**188687**	100	139723	74.1	48964	25.9
1965	**204813**	100	152223	74.3	52590	25.7
1966	**227788**	100	170844	75.0	56944	25.0
1967	**249595**	100	186779	74.8	62816	25.2
1968	**268840**	100	202302	75.3	66538	24.7
1969	**288583**	100	218748	75.8	69835	24.2
1970	**314824**	100	240118	76.3	74706	23.7
1971	**337031**	100	257289	76.3	79742	23.7
1972	**371008**	100	286069	77.1	84939	22.9
1973	**406965**	100	315245	77.5	91720	22.5

1974	**427804**	100	327350	76.5	100454	23.5
1975	**442185**	100	335786	75.9	106399	24.1
1976	**496225**	100	378085	76.2	118140	23.8
1977	**542040**	100	409408	75.5	132632	24.5
1978	**593695**	100	444540	74.9	149155	25.1
1979	**630254**	100	473073	75.1	157181	24.9

Note: [1] Calculated based on the data from tables C8, C10 and C11.

Preliminary statistical data **Table C 8**

The gross added value for the non-material services[1] by branches, in lei 1963, annual series, period 1950 - 1979

Years	Total	Gross value added for the branches of the non-material services[1]					
		financial banking and insurance	public administration defence	education, research, health, social care	owned housing	paid household staff	real estate transactions others
	mil. lei	mil. lei	mil. lei	mil. lei	mil. lei	mil. lei	mil. lei
1	2	3	4	5	6	7	8
1950	**8487**	1087	1837	2783	641	109	2030
1951	**10717**	1413	2315	3489	848	109	2543
1952	**10612**	1413	2337	3391	891	109	2471
1953	**11967**	1631	2674	3837	924	109	2792
1954	**12189**	1641	2696	3957	957	109	2829
1955	**14256**	1859	3152	4631	1109	109	3396
1956	**12461**	1641	2761	4011	1087	109	2852
1957	**14970**	1967	3337	4805	1261	109	3491
1958	**14394**	1859	3228	4587	1272	109	3339
1959	**16530**	2185	3663	5348	1272	109	3953
1960	**17144**	2402	4055	5837	1500	109	3241
1961	**18662**	2620	4424	6305	1598	217	3498
1962	**19093**	2620	4478	6468	1717	217	3593
1963	**20983**	2946	4968	7044	1924	217	3884
1964	**23056**	3272	5435	7837	2000	217	4295
1965	**25081**	3489	5935	8544	2239	217	4657
1966	**27372**	3837	5957	9772	2381	217	5208
1967	**29668**	4163	6315	10577	2718	217	5678
1968	**31870**	4381	6761	11327	2946	326	6129
1969	**34172**	4707	7316	12164	3065	326	6594
1970	**34104**	5033	7761	12848	3228	326	4908
1971	**39008**	5361	9677	14578	3678	418	5296
1972	**41762**	6103	10001	15508	3877	418	5855
1973	**44502**	7357	9196	17107	3961	418	6463
1974	**48933**	7540	11400	18660	4090	500	6743
1975	**52860**	8754	8668	21453	6696	346	6943
1976	**58430**	9668	9553	23694	7263	385	7867
1977	**63056**	10428	10303	25522	7754	414	8635
1978	**67873**	11217	11063	27388	8235	443	9527
1979	**72685**	12054	11890	29379	8764	481	10117

Note: [1]It does not include the net product of freelancers who represented a small number and revenue in the centralized economy system.

The fixed capital consumption for the non-material services[1] in lei 1963, by branches, annual series, period 1950 - 1979

Years	Fixed capital consumption for the branches of non-material services				
	Total mil. lei	financial- banking and insurance mil. lei	public administration defence mil. lei	education, research, health, social care mil. lei	the rent of owned housing mil. lei
1	2	3	4	5	6
1950	**804**	x	207	174	424
1951	**1000**	x	250	228	522
1952	**1076**	x	272	239	565
1953	**1130**	x	283	250	598
1954	**1207**	11	304	261	630
1955	**1294**	11	326	283	674
1956	**1457**	11	370	315	761
1957	**1587**	11	402	348	826
1958	**1598**	11	402	348	837
1959	**1598**	11	402	348	837
1960	**1837**	11	467	402	957
1961	**2011**	11	511	435	1054
1962	**2239**	11	565	489	1174
1963	**2424**	11	620	522	1272
1964	**2565**	11	652	554	1348
1965	**2815**	11	717	609	1478
1966	**2924**	33	196	1076	1620
1967	**3337**	33	228	1228	1848
1968	**3554**	33	239	1315	1967
1969	**3772**	33	250	1402	2087
1970	**3870**	33	261	1435	2141
1971	**4138**	31	272	1411	2424
1972	**4347**	42	282	1505	2518
1973	**4598**	42	314	1641	2602
1974	**4490**	40	300	1660	2490
1975	**4560**	48	308	1684	2520
1976	**4772**	48	317	1760	2646
1977	**5002**	48	337	1847	2771
1978	**5195**	48	346	1924	2876
1979	**5416**	48	366	2001	3001

Note: [1] See the notes from Table C11.

Preliminary statistical data

Table C10

The gross [2] value added[1] for the production of material goods and services, by branches, in lei 1963, annual series, period 1950-1979

Years	Total	Production of goods				Material services			
		Total	agricul-ture forestry others	indus-try and others	construc-tions	Total	trans-port teleco-mmuni cation	commerce	com-munal house-hold, resi-dential house-hold, roads, bridges
	col. 3+7	4+5+6				8+9+10			
	mil. lei	mil. lei	mil. lei	mil. lei	mil. lei	mil. lei	mil. lei	mil. lei	mil. lei
1	2	3	4	5	6	7	8	9	10
1950	**57812**	**48089**	25175	20316	2598	**9723**	1957	6070	1696
1951	**72221**	**59948**	31501	24990	3457	**12273**	2370	7740	2163
1952	**71005**	**58959**	28327	26588	4044	**12046**	2881	6904	2261
1953	**79558**	**67372**	33186	29240	4946	**12186**	3283	6436	2467
1954	**81126**	**67720**	32197	31621	3902	**13406**	3576	7265	2565
1955	**95992**	**81221**	40784	35088	5348	**14771**	3989	7988	2794
1956	**83800**	**68068**	27403	34143	6522	**15732**	4381	8438	2913
1957	**100765**	**84634**	39947	37773	6913	**16131**	4620	8326	3185
1958	**97173**	**81101**	32393	41241	7468	**16072**	4641	8213	3218
1959	**112482**	**96080**	42480	45045	8555	**16402**	4750	8217	3435
1960	**123743**	**105874**	43002	52556	10316	**17869**	5555	8433	3881
1961	**134014**	**114570**	44513	58785	11272	**19444**	6381	8943	4120
1962	**139143**	**118211**	39915	66361	11935	**20932**	6946	9442	4544
1963	**150490**	**127386**	41904	73122	12359	**23104**	8022	10049	5033
1964	**165632**	**139723**	43730	82569	13424	**25909**	8631	11919	5359
1965	**179732**	**152223**	44687	93341	14196	**27509**	9424	12270	5815
1966	**200416**	**170844**	51078	103809	15957	**29572**	10261	14028	5283
1967	**219927**	**186779**	51143	117287	18349	**33148**	11490	15810	5848
1968	**236970**	**202302**	54991	126722	20588	**34668**	12283	16178	6207
1969	**254412**	**218748**	54709	142408	21631	**35664**	12294	16707	6663
1970	**280720**	**240118**	47208	165996	26914	**40602**	18044	15145	7413
1971	**298023**	**257289**	58248	172101	26940	**40734**	17974	17671	5089
1972	**329246**	**286069**	63766	191935	30368	**43177**	19845	17825	5507
1973	**362464**	**315245**	61613	222313	31319	**47219**	22196	19077	5946
1974	**378871**	**327350**	57640	238920	30790	**51521**	22730	19831	8960
1975	**399325**	**345786**	57941	253910	33935	**53539**	25204	19177	9158
1976	**437795**	**378085**	76469	265397	36219	**59710**	27167	22961	9582
1977	**478984**	**409408**	72429	288648	48331	**69576**	29158	30288	10130
1978	**525822**	**444540**	79384	313112	52044	**81282**	33987	35799	11496
1979	**557569**	**473073**	77518	338537	57018	**84496**	32583	39888	12025

Note: [1] The net revenue plus the fixed capital consumption are considered.

[2] The initial data of the net domestic revenue were adjusted according to Note 1 of Table Cd.

Preliminary statistical statements **Table C11**

The fixed capital consumption[1,2], for the production of material goods and services, by branches, in lei 1963, annual series, period 1950 – 1979

Years	Total	Production of goods			Material services		
		agriculture forestry others	industry and others	construc-tions	transport telecom-munications	commerce	com-munal house-hold, resi-dential house-hold, roads, bridges
	mil. lei	mil. lei	mil. lei	mil. lei	mil. lei	mil. lei	mil. lei
1	2	3	4	5	6	7	8
1950	**7054**	1044	3359	424	870	205	1152
1951	**8654**	1283	4120	522	1065	262	1402
1952	**9222**	1370	4413	565	1141	233	1500
1953	**9751**	1446	4674	598	1217	218	1598
1954	**10192**	1544	4989	641	1294	246	1478
1955	**11096**	1652	5305	674	1380	270	1815
1956	**12492**	1859	5989	761	1554	285	2044
1957	**13479**	2011	6468	826	1685	282	2207
1958	**13670**	2044	6565	837	1707	278	2239
1959	**13670**	2044	6565	837	1707	278	2239
1960	**15698**	2348	7555	967	1967	285	2576
1961	**17427**	2554	8239	1054	2141	624	2815
1962	**19378**	2848	9185	1174	2381	659	3131
1963	**21028**	3098	9968	1272	2587	701	3402
1964	**22475**	3294	10609	1359	2761	832	3620
1965	**24509**	3598	11598	1478	3011	856	3968
1966	**26818**	3468	13696	2261	3196	979	3218
1967	**30648**	3968	15653	2587	3663	1103	3674
1968	**32673**	4228	16718	2761	3913	1129	3924
1969	**34623**	4489	17729	2935	4141	1166	4163
1970	**35319**	4598	18164	3000	4239	1057	4261
1971	**33217**	4744	17650	2905	4180	1679	2059
1972	**36504**	5037	19615	3407	4588	1694	2163
1973	**39330**	5079	21569	3522	5058	1813	2289
1974	**41724**	5340	21120	3490	4930	1884	4960
1975	**42197**	5416	21395	3540	5002	1822	5022
1976	**44433**	5666	22395	3704	5233	2182	5253
1977	**47245**	5955	23521	3886	5493	2878	5512
1978	**49463**	6176	24416	4040	5705	3402	5724
1979	**51726**	6426	25406	4204	5936	3790	5964

Sources: *Romania's Statistical Yearbook*, 1963, 1971, 1981, 1990, 1991; DCS; data on the social product, material expenditures and domestic income for the period 1950-1966. DCS-BDS no.474 S 1974; the calculation of the gross domestic product and of the domestic income for 1973, according to the UN methodology, DCS-BDS, no.0190/1974.

Notes: [1] As the fixed capital consumption was calculated at the net revenue of the branches, the adjustment that was performed in the domestic revenue was transferred also to the fixed capital consumption of the branches of the material goods and services production; the note of Table Cd.

[2] As it was mentioned in the Introduction to this section, the series of the amounts representing the fixed capital consumption was done, in comparable prices 1963 based on the presented sources and on the amortisation indexes of the fixed assets and, for the years the information is missing, the volume of the fixed capital was estimated by interpolation.

Section D

GROSS DOMESTIC PRODUCT DURING THE 1980-2010 PERIOD

Historical and methodological introduction

The researched period is represented by the last decade - 1980-1989 - of the command economy system, facing with a crisis and blockage[39] and the 1990-2010 decades, of transition (and recovery) to the market economy also confronted with the deterioration phenomena, of the economic potential. Thus, from the historical standpoint, a long and costly economic decline process, was cumulated in the two sub-periods due to different causes[40].

In the third decade, 2000-2010 of the period, the transition to a market economy was almost completed and at the same time the recovery and development of a new socio-economic system started. In 2000 Romania had reached a development level that was 25 years ago; an equal loss of economic growth.

The evolution and structure of the gross domestic product, which we present in the following statistics, confirm this sinuous type of evolution of the Romanian economy.

The value representation of these processes, and in particular of the gross domestic product is presented in the official statistics, in the *Statistical Yearbook of Romania*, in current prices and indexes.

The GDP indicator in the 1980-2000 stage, expressed in lei current prices, was converted through the official deflator published by the Central Bank of Romania, to comparable lei 1990. The GDP series thus obtained was converted then in USD PPP 2000 based on the method mentioned at section A, and as for the previous period 1950-1979, based on the 8.8 lei converter for one dollar using the purchasing power parity of 1975, calculated in the Economic Memorandum of Romania, 1983, according to the International Comparisons Program, 3rd round. For this, the GDP between 1980-2000, expressed in 1990 comparable lei was calculated to the prices of 1975 based on the price index, being reduced by 10.9%, the difference of their increase between 1975 and 1990; the GDP in comparable prices 1975 was divided by the 8.8 lei converter = 1 USD PPP, thus resulting the GDP series in USD 1975.

[39] Constantin M. Ionete, *Criza de sistem a economiei de comandă şi etapa sa explozivă*, Bucureşti, 1993.
[40] Belli Nicolae, *Tranziţia mai grea ca un război. România 1990-2000*, Bucureşti, 2001.

Furthermore, by weighting the new GDP series with 3.38, the depreciation coefficient of the USD for calculating the USA GDP between 1975 and 2000, we obtained the GDP of the Romanian economy for the period 1980-2000 in USD PPP 2000.

The last time interval, of the section D, GDP in the period 2001-2010 was calculated based on dynamics and structure indexes of the period, which were obtained from the National Institute of Statistics, on a fixed base, the year 2000 = 100, indexes applied to the GDP data of the year 2000 and directly expressed in USD PPP 2000. Thus, section D, comprising the GDP series for the 1980-2010 period complemented the period of sections B - 1862-1947 and C - 1950-1979, therefore obtaining the entire series of the 150 years, compatible and comparable in USD PPP 2000 presented in the summary section A.

Further we will present, as it was the case for the other section Introductions, in a summarized manner, by statistical data, the main aspects related to Romania's evolution[41].

a.**The population,** as akey factor of potential and social production, underwent radical changes in the evolution of its structures during the three decades.

Table Da

Romania's population, demo-economic indicators, selected years

Years	Total	Urban	Rural	Employed population[1]		Population employed in		Employees	
	mil. inhabi-tants	%	%	mil. persons	% in total population (col.5/2)	production of goods[2] %	services %	mil. persons	% in employed population
1	2	3	4	5	6	7	8	9	10
1980	22.2	45.8	54.2	10.4	46.8	73.4	26.6	7.3	70.2
1985	22.7	50.0	50.0	10.6	46.7	73.6	26.4	7.7	72.6
1990	23.2	54.3	45.7	10.9[1]	47.0	72.2	27.8	8.2	75.2
1995	22.7	54.9	45.1	9.5	41.9	68.4	31.6	6.2	65.3
2000	22.4	54.6	45.4	10.5	46.9	69.8	30.2	4.6	53.4
2005	21.6	54.9	45.1	9.2	42.6	61.9	38.1	4.6	50.1
2010	21.4	55.1	44.9	9.2	43.0	57.1	42.9	4.4	47.8

Notes: [1] Since 1990, only civil employed population.
[2] Includes agriculture, industry and constructions.

[41] The data and calculations performed based on the *Statistical Yearbook of Romania*, 1981, 1991, 2012 time series.

Among the specific demo-economic elements of the period, for the first time in the modern and contemporary history of the country one can notice a demographic decline; after 1990, the reduction between the two decades reaches the level of 2 million inhabitants. The forecast of the demographers registers this decline for the long term.

On the other hand, in the first decade of the period, in 1985, as another first historical event, the ratio between the urban and rural population became equal, the latter dominating earliest times since the Romanian history; the process in favor of the urban area advances, and in 2010 it reached the level of 55% of the country's total population.

The employed population, for which the official statistics introduced new indicators after 1990, has registered as of that year a declining trend since this year; in 2010 the employed population represented 43% of the total population, as compared to 47% in 1990.

The more radical are the changes in the shares between the employed population in the two sectors; in three decades, the population working in the production of goods decreases from 73.1% to 57.1%, while the share of services increases from 26.6%, in a more sustained manner after 1990, to 42.9% in 2010.

The same radical changes are manifested in what concerns the employed population; after an increase of one million between 1980-1990, the number of employees decreases from 8.2 million to 4.4 million in 2010, due to the loss of jobs following the dissolving or restructuring of several enterprises with state-owned capital, as well through the expansion of the economic entrepreneurial activities.

As concerns the goods production sectors, the changes are much more radical and negative as compared to the production of services.

b. **In agriculture**, a national strategic sector with a more complicated social issue, the situation can be presented in a summarized manner in the tables Db and Dc.

What is dominating is the downward trend, with some exceptions, of the potential and production indicators; the cultivated surface decreases by 1.5 million ha, and the effect is loss of food products; the supply of fertilizers is also reduced: for the natural ones, under half of the 1980 level and a higher share for the chemical fertilizers; most irrigations have been destroyed and lost - 90%.

The same destructive processes occur in livestock; in livestock units, out of the total livestock in 2010, only 38% is left; for bovines only 31% and for swine 45% as compared to the number of 1985.

Table Db

Agriculture key indicators, selected years (a) potential

Years	Cultivated surface mil. ha	Tractors mil. pcs	Fertilizers natural mil. t	Fertilizers chemicals thousand t	Fertilizers chemicals Kg/ha	Irrigated surface mil. ha	Livestock (livestock units) total mil.	out of which million heads bovine	sheep	swine
1	2	3	4	5	6	7	8	9	10	11
1980	6.5	147	34.3	1114	113	1.6	12.1	5.7	1.5	4.2
1985	6.3	184	37.9	1200	120	2.4	13.6	5.8	1.5	5.4
1990	5.7	127	35.1	1103	117	1.9	11.4	5.1	1.4	4.4
1995	6.4	163	21.5	470	50	0.4	7.6	2.9	1.0	2.7
2000	5.7	160	18.3	342	37	0.2	5.5	2.5	0.7	1.6
2005	5.9	173	19.4	461	50	0.05	6.5	2.5	0.7	2.3
2010	5.0	180	16.4	481	51	0.08	5.2	1.8	0.9	1.9

The agricultural properties and holdings are fragmented by the parceling processes. In 2002 the agricultural surface was divided in 34 million parcels which contributes to the decrease of the agricultural production.

Some of the indicators of the agricultural activity's outcomes highlight the decline tendencies in this sector.

Table Dc

Agriculture – key indicators, averages of the years (b) production

Averages of years	Value of the agricultural production, lei 2005-2010: vegetables billion lei	animals billion lei	per arable hectare thousand lei	per inhabitant thousand lei	Average production per ha: wheat tons	corn tons	Number of cows mil.	Number of birds mil.	Animal production: meat million tons	milk million liters	eggs billion
1	2	3	4	5	6	7	8	9	10	11	12
1980-1984	47.0	18.8	4.6	3.0	2.7	3.3	3.1	106.5	2.3	48.9	6.8
1985-1989	45.4	19.2	4.5	2.9	2.9	3.1	2.8	125.3	2.3	50.2	7.5
1990-1994	32.1	17.9	3.5	2.3	2.6	2.9	2.2	101.1	2.2	47.2	6.4
1995-1999	32.0	16.9	3.4	2.2	2.6	3.3	1.9	73.0	1.7	55.4	5.5
2000-2004	31.3	16.3	3.3	2.2	2.4	3.0	1.8	76.5	1.5	55.4	6.4
2005-2010	29.5	16.6	3.2	2.2	2.6	3.3	1.6	83.8	1.4	58.5	6.7

As a synthetic indicator, the value of the agricultural production, expressed in the average prices of 2005-2010, significantly reduced during the three decades; the vegetal one by 37% and the animal one by 14%; this is also confirmed by a decrease in the production per hectare and per inhabitant; in turn, the yield per hectare for wheat and corn did not decrease, which seems to be paradoxical compared to the table of potential data; under the circumstances when the irrigations practically disappear from 2.4 mil hectares, the quantity of fertilizers was significantly reduced, and the agricultural holdings were in the most fragmented situation in the history of the country, it is difficult to accept that yields were maintained at approximately the same level, as estimated by the ministry of agriculture.

The same situation can be acknowledged for some animal products; while the number of cows decreased to almost half and the number of birds decreased by 33%, the milk production increased by 20% as compared to the initial period, and the egg production, with variations, reached its initial level during the last period; average productions per animal and bird without any precedent in the Romanian history.

c. In industry, the most advanced sector from the technological perspective and with a production having the highest share in the economy, the highest losses and damages of the country's economic potential has been registered. With an unbalanced structure, doubled by some inefficient branches, industry during the last decade of the command economy, was characterized in 1990 by the prime minister as "a mountain of scrap". It seemed like a signal to give up, the destruction of most of the big industrial factories and of entire economic branches.

During the ninth decade, 1980-1990, the major difficulties of the economy were expressed, in a summarized manner as a decrease of labor productivity, despite the increased investments in industry[42].

Thus, the official statistics registered the reduction of this basic indicator, per employee, in certain essential industrial branches[43].

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[42] Investments in certain industrial branches, indexes (1970 = 100)

	1970	**1980**	**1985**	**1989**
Industry total, out of which:	100	282	313	271
electricity	100	200	488	367
fuels	100	271	494	437
non-ferrous metallurgy	100	237	366	411
chemistry	100	350	265	252
celluloses, paper	100	208	265	128

Labor productivity (indexes 1980 = 100)

Branch	1980	1985	1989	1990
electricity	100	32	35	28
fuels	100	70	77	55
non-ferrous metals	100	88	86	59
chemistry	100	96	90	72
cement	100	67	75	67
celluloses, paper	100	88	57	77

During the three decades, 1980-2010, the industrial production, with increase and decrease variations, and its potential are significantly reduced; a massive dezindustrialization process is recorded, involving the loss of most of the production capacities accumulated in the last century.

Industry by basic indicators

	Employees		Production	Energy consumption	
	thousand	1980=100	1980=100	billion kWh	1980=100
1980	3198	100.0	100.0	60.5	100.0
1985	3501	109.5	120.0	54.6	90.3
1990	3702	115.8	108.0	53.2	88.0
1995	2815	81.2	63.9	35.7	59.0
2000	2004	62.7	57.1	22.4	37.0
2005	1973	61.7	71.4	26.1	43.1
2010	1739	54.2	88.1	17.5	28.9

From the highest level of the ninth decade to the tenth one, the workforce and production indicators are reduced by almost half, and the energy consumption to 37%.

The Romanian economy to be able to function, besides using its own resources, it had to move to massive imports, in particular of consumer goods, becoming a retail market for foreign goods and an external debtor in order to cover the costs of imports; records were also registered for this situation: the biggest imports and the highest foreign debt, as compared to the capabilities of the national economy.

[43] The *Statistical Yearbook of Romania*, 1991.

In the other branches of the economy, especially services, the evolution was similar to that of the production of goods, except for the monetary field, which in the period 1990-2000 witnessed the highest level of inflation after 1944-1947, e.g. ten thousand times higher.

This caused difficulties for the Romanian economy, affecting, first of all, the standard of living of the employees and retirees, respectively of most of the population with fixed incomes, as well as hindering the investments, especially the long term ones.

Incomes and consumption indicators of the population, selected years

Years	Average real salary indexes	Average real pension indexes	Average consumption per capita			Daily calorie consumption	Domestic consumption of energy per capita kWh
			meat kg	sugar kg	grains kg		
1	2	3	4	5	6	7	8
1980	100.0	100.0	62.0	28.2	173	3254	220
1985	95.9	91.0	55.1	26.3	143	3037	212
1990	100.5	101.0	60.1	27.3	156	2930	186
1995	66.1	64.1	47.8	23.5	216	3038	313
2000	58.6	42.3	46.3	23.0	220	2908	303
2005	89.5	63.9	68.0	26.0	207	3450	291
2010	123.0	127.9	60.0	22.1	200	3212	306

Source: The *Statistical Yearbook of Romania*, 1990, 2001.

The contraction of the economic activities during the ninth decade with a great shortage of food, electricity, reduced by the communist power to internal consumption in order to increase exports, with the view of paying the external debt, is reflected in a decrease of real revenues until 1990; in the following decade their reduction in real terms was caused by the inflation and by the fall of production. Although the economic recovery had a slow pace, the democratic state, using specific tools, increased the incomes of the civil servants and retirees, being in the latest period higher than the previous peak level.

The dynamics of the economy, with its ups and downs, was synthetically expressed in the evolution of the global indicators - gross domestic product - gross added value.

At the end of the three decades of crises and restructuring, the economy registering an upward trend and balance, shows a GDP per capita higher by 35% as compared to the beginning of the same period; more specifically, the services sector was developed faster, although it was deprived before 1990; this sector marked an increase to 241% in the 2006-2010 period as compared to the initial time interval, while for the goods sector the increase was of only 81%.

Table Df

Gross domestic product *per capita* and the gross added value *per capita* in the production of goods and services, USD PPP 2000

Averages of years	GDP per capita		Gross added value per capita			
			in the production of goods		in the production of services	
	USD	indexes	USD	indexes	USD	indexes
1	2	3	4	5	6	7
1980-1984	9401	100.0	6433	100.0	2520	100.0
1990-1994	7950	84.6	4907	76.3	2804	111.3
2001-2005	9675	103.9	4196	65.5	4439	176.2
2006-2010	12715	135.3	5235	81.4	6079	241.2

In all the final statistical situations of this **section D**, the presentation of the 13 tables, as well as in **sections B and C**, was made chronologically reversed as compared with the primary calculations; they are presented in the absolute and relative data.

Summarized statistical data

Gross domestic product, *total and per capita*, in comparable prices, lei and USD PPP 2000, annual series, 1980-2010 period

Years	GDP lei 1990 mil.	NIS Index	GDP USD PPP 2000 mil.	Index	GDP per capita USD PPP 2000	GDP per capita Index
1	2	3	4	5		7
1980	734986		198465	**100**	8939	**100**
1981	735510		198606	100.1	8885	99.4
1982	765328		206658	104.1	9194	102.8
1983	811850		219220	110.5	9720	108.7
1984	860055		232237	117	10265	114.8
1985	859266		232024	116.9	10211	114.2
1986	879171		237399	119.6	10402	116.4
1987	886638		239415	120.6	10437	116.7
1988	882526		238305	120.1	10337	115.6
1989	830960		224380	113.1	9692	108.4
1990	784420		211813	100	9127	100
1991	682933		184409	87.1	7954	87.1
1992	622518		168096	79.4	7376	80.8
1993	631787		170599	80.5	7497	82.1
1994	656417		177249	83.7	7798	85.4
1995	703145		189867	89.6	8371	91.7
1996	731175		197436	93.2	8733	95.7
1997	686564		185390	87.5	8223	90.1
1998	653754		176530	83.3	7845	86.0
1999	645762		174372	82.3	7764	85.0
2000	659098	100	177973	84.0	7933	86.9
2001		105.6	187940	88.7	8387	91.9
2002		111.1	197728	93.4	9120	99.9
2003		117.2	208584	98.5	9598	105.2
2004		127.0	226026	106.7	10429	114.3
2005		132.3	235458	111.2	10889	119.3
2006		143.0	254501	120.2	11791	129.2
2007		152.8	271943	128.4	12627	138.3
2008		165.7	294901	139.2	13714	150.3
2009		154.0	274078	129.4	12766	139.9
2010		152.7	271765	128.3	12681	138.9

Source*:* *Statistical yearbook of Romania* 1990, 1996, 2001; Central Bank of Romania, *Annual reports* 1991-1995, 1996, 2002 World Bank, Marvin R. Jackson, *National Accounts and Estimation of Gross Domestic Product and its Growth Rates for Romania*, Washington, 1985; Samuel H. Williamson, *Six Ways to Compute the Value of a U.S. Dollar Amount 1774 to present,* Measuring worth, 2008.

Notes 1: The transformation of GDP from lei comparable prices 1975 was done by multiplying the 1990 series with a 0.902 coefficient representing the increase by 10.9%. of GDP prices between 1975-1990.

2. The GDP conversion from lei 1975 in USD at the purchasing power parity, by means of the 8.8 lei = 1 USD 1975 ratio was calculated by following the International Comparisons Program, ICP, 3rd round and the Economic Memorandum of Romania 1983.

3. 1975 USD PPP were transformed in USD 2000 by means of the 3.8 USA GDP depreciation coefficient during 1975-2000, calculated according to Samuel H. Williamson.

Summarized statistical data **Table D 2**

Gross domestic product by branches - training resources, in lei 1990, 1980-1989 period

Resources	**1980**	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**	**1988**	**1989**
1	2	3	4	5	6	7	8	9	10	11
1. Agriculture	98488	113269	138524	120966	128148	128031	121326	118809	126201	119658
2. Industry	366758	340541	336744	375075	401646	295262	415848	417606	415670	383904
3. Constructions	53654	50014	47450	51958	55043	57571	59784	61178	58247	45703
1-3. Total production of goods	**518900**	**503824**	**522719**	**547999**	**584837**	**580864**	**596957**	**597593**	**600118**	**549265**
4. Transportation, communications, storage	57329	57370	53573	52770	55044	56712	58904	70931	67955	55674
5. Trade	49244	50015	45920	45464	48163	50697	50113	55858	56482	48196
6. Financial activities, insurance	16905	17652	17603	30850	31822	20622	18463	19506	17651	17450
7. Public administration, army	17640	18388	17603	19484	18921	21482	19342	20393	19416	20774
8. Education, health assistance	27194	30156	27552	27603	30101	34371	33408	32806	32653	33238
9. Real estate transactions, professional scientific, cultural, activities, others	36749	38982	34440	36533	37842	37808	38684	39899	40596	37393
4-9. Total services	**205061**	**212536**	**196690**	**212705**	**221895**	**221691**	**211907**	**239392**	**234753**	**212726**
10. Total 1-9	**723961**	**716388**	**719409**	**760705**	**806733**	**802555**	**815871**	**836985**	**834871**	**761991**
11. Adjustments for the production of banking services	-22785	-25007	-24490	-32474	-39563	-26637	-23738	-31032	-23828	-12464
12. Gross Added Value	**701177**	**691379**	**694918**	**728229**	**767169**	**775917**	**792133**	**805954**	**811041**	**749526**
13. Customs taxes + charges - subsidies	44834	44131	72706	86868	97186	87645	94071	88664	81192	85589
14. Subsidies	-11025	-	-2296	-3247	-4300	-4296	-7033	-7980	-9708	-4155
15. Gross Domestic Product	**734986**	**735510**	**765328**	**811850**	**860055**	**859266**	**879171**	**886638**	**8826526**	**830960**

Source: *Statistical Yearbook of Romania*, 1990, 1991, 2012, time series; Reports of the National Bank of Romania, 1991, 1995, 2002.

Table D 3

Gross domestic product by branches, in lei 1990, 1990-2000 period

mil. lei 1990

Resources	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
1	2	3	4	5	6	7	8	9	10	11	12
1. Agriculture	171004	129074	118278	132675	131940	139223	140386	123581	94794	85886	73160
2. Industry	317690	258832	238424	204699	212023	231335	242750	212148	181744	160149	166093
3. Constructions	42359	30048	29882	32853	39385	46407	47526	35702	32688	32288	32954
1-3. Total production of goods	**531052**	**417955**	**386584**	**370227**	**383348**	**416965**	**430662**	**371431**	**309226**	**278323**	**272207**
4.Transportation, communications, storage	45496	45757	52914	63179	64985	54142	65806	61791	60799	63930	69205
5. Trade	48634	92196	89020	74551	76801	73830	85547	78268	86949	88469	94910
6. Financial activities, insurance	21179	17756	32993	32221	31508	35157	21935	11672	11768	10978	9886
7. Public administration army	21964	21171	21166	19585	20349	26016	22666	18537	23535	21310	25705
8. Education, health, assistance	36083	34147	29881	27167	26913	30938	32903	24030	31380	32288	29659
9. Real estate transactions, professional, scientific, cultural activities, culture, others	34514	26634	26768	26535	30195	33751	39483	70030	75835	82012	89637
4-9. Total services	**207870**	**237661**	**252742**	**243238**	**250751**	**253834**	**268340**	**264328**	**290266**	**298937**	**319002**
10. Total 1-9	**738923**	**655615**	**639325**	**613465**	**634099**	**670800**	**699002**	**635758**	**599492**	**577311**	**591210**
11. Adjustments for the banking services	-18042	-14342	-29258	-26535	-25600	-21094	-14624	-3433	-9806	-9686	-7250
12. Gross Added Value	**720881**	**641273**	**610068**	**586930**	**608499**	**649706**	**684379**	**632325**	**589686**	**567625**	**583961**
13. Taxes customs - subsidies	94130	66245	59762	66969	59078	65392	62150	60418	67990	82658	79092
14. Subsidies	-30592	24586	-47311	-22112	-11159	-11953	-15355	-6179	-3923	-4520	-3955
15. GROSS DOMESTIC PRODUCT	**784420**	**682933**	**622518**	**631787**	**656417**	**703145**	**731175**	**686564**	**653754**	**645762**	**659098**

Source: *Statistical Yearbook of Romania,* 1993, 1993, 2001 and 2002, time series; Reports of the National Bank of Romania, 1993-2002.

Summarized statistical data **Table D 4**

Gross domestic product by branches, in lei 2000, 2000-2010 period

Resources		**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
1		2	3	4	5	6	7	8	9	10	11
1. Agriculture	million USD	25284	23824	25106	29780	24672	25501	18677	23903	21813	24021
2. Industry	million USD	48470	51379	53885	57868	59435	63910	63910	67804	67088	70176
3. Constructions	million USD	9798	10740	11379	12427	13822	16967	21826	28808	24624	23887
1-3. Total production of goods	million USD	**83552**	**85942**	**90370**	**100076**	**97929**	**106377**	**104413**	**120514**	**113527**	**118084**
4. Transportation, communications, storage	million USD	19552	20596	22406	24887	27368	29271	31100	32312	28880	26398
5. Trade	million USD	24997	26020	29295	32621	37763	44262	49942	55596	49737	51221
6. Financial activities, insurance	million USD	2572	2350	2145	2670	2756	2804	3147	3385	3137	3230
7. Public administration, army	million USD	6347	6652	7137	5987	6118	5044	4899	4580	4137	4268
8. Education, health assistance	million USD	7811	8571	8851	9426	9674	8970	8851	9682	9634	8851
9. Real estate transactions, professional, scientific, cultural activities, others	million USD	24315	27824	25436	25674	26302	27997	38318	36688	37622	29819
4-9. Total services	million USD	**85594**	**92013**	**95270**	**101265**	**109981**	**118348**	**136257**	**142247**	**133147**	**123767**
10. GROSS ADDED VALUE	million USD	**169146**	**177955**	**185660**	**201341**	**207910**	**224725**	**240669**	**262757**	**246671**	**241851**
11. Taxes customs - subsidies	million USD	18794	19773	22944	24185	27549	29777	31273	32144	27408	29894
12. GROSS DOMESTIC PRODUCT	million USD	**187940**	**197728**	**208584**	**226026**	**235458**	**254501**	**271943**	**294901**	**274078**	**271765**

Preliminary statistical data **Table D 5**

Gross domestic product after operations being performed on the gross added value, in lei 1990, averages of the years, period 1980-2000

Averages of years	Gross added value in the production goods and services million lei	Imputed banking services million lei	Gross added value minus col. 3 million lei	Taxes per product and customs taxes million lei	Subsidies per product million lei	Gross domestic product col. 4+5-6 million lei
1	2	3	4	5	6	7
1980-1984	745438	-28863	716575	69145	-4174	781546
1985-1989	810454	-11127	799327	87432	-6634	880125
1990-1994	656286	-22756	633530	69237	-27152	675615
1995-2000	628929	-10982	617947	69617	-7648	679916

Note: 1. Calculated based on Table D 6

Preliminary statistical data Table D 6

Gross domestic product after operations being performed on the gross added value, in lei 1990, annual series, period 1980-2000

Years	Gross added value in the production goods and services million lei	Imputed banking services million lei	Gross added value minus col. 3 million lei	Taxes per product and customs taxes million lei	Subsidies per product million lei	Gross domestic product col. 4+5-6 million lei
1	2	3	4	5	6	7
1980	723961	-22785	701176	44834	-11025	734985
1981	716386	-25007	691379	44131	-	735510
1982	719409	-24490	694919	72706	-2296	765329
1983	760704	-32474	728230	86868	-3247	811851
1984	806732	-39563	767169	97186	-4300	860055
1985	802554	-26637	775917	87645	-4296	859266
1986	815870	-23738	792132	94071	-7033	879170
1987	836986	31032	868018	88664	-7980	948702
1988	834870	-23828	811042	81192	-9708	882526
1989	761991	-12464	749527	85589	-4155	830961
1990	738923	-18042	720881	94130	-30592	784419
1991	655615	-14342	641273	66245	-24586	682932
1992	639326	-29258	610068	59762	-47311	622519
1993	613465	-26535	586930	66969	-22112	631787
1994	634099	-25600	608499	59078	-11159	656418
1995	670800	-21094	649706	65392	-11953	703145
1996	699003	-14624	684379	62150	-15355	731174
1997	635758	-3433	632325	60418	-6179	686564
1998	599492	-9806	589686	67990	-3923	653753
1999	577311	-9686	567625	82658	-4520	645763
2000	591210	-7250	583960	79092	-3955	659097

Note: 1 Calculated based on tables D2, D3 and D4. See the notes of Table D 1

Preliminary statistical data **Table D 7**

Gross added value in the production of goods and services, in lei 1990, total and structure, averages of the years, period 1980-2000

Averages of years	Gross added value		In the goods production sector		In the services sector	
	million lei	shares	million lei	shares	million lei	shares
1	2	3	4	5	6	7
1980-1984	745438	100	535656	71.9	209782	28.1
1985-1989	810454	100	584960	72.2	225494	27.8
1990-1994	656286	100	417833	63.6	238453	36.4
1995-2000	628929	100	346469	55.1	282460	44.9

Note: Calculated based on Table D 8

Preliminary statistical data **Table D 8**

Gross added value in the production of goods and services, in lei 1990, total and structure, annual series, period 1980-2000

Years	Gross added value		In the goods production sector		In the services sector	
	million lei	%	million lei	%	million lei	%
1	2	3	4	5	6	7
1980	723961	**100**	518900	71.7	205061	28.3
1981	716386	100	503824	70.3	212562	29.7
1982	719409	100	522719	72.7	196690	27.3
1983	760704	100	547999	72.0	212705	28.0
1984	806732	100	584837	72.5	221895	27.5
1985	802554	100	580864	72.4	221690	27.6
1986	815870	100	596957	73.2	218913	26.8
1987	836986	100	597594	71.4	239392	28.6
1988	834870	100	600118	71.9	234752	28.1
1989	761991	100	549265	72.1	212726	27.9
1990	738923	100	531052	71.9	207871	28.1
1991	655615	100	417955	63.8	237660	36.2
1992	639326	100	386584	60.5	252742	39.5
1993	613465	100	370227	60.4	243238	39.6
1994	634099	100	383348	60.5	250751	39.5
1995	670800	100	416965	62.2	253835	37.8
1996	699003	100	430662	61.6	268341	38.4
1997	635758	100	371431	58.4	264327	41.6
1998	599492	100	309226	51.6	290266	48.4
1999	577311	100	278323	48.2	298988	51.8
2000	591210	100	272207	46.0	319003	54.0

Note: 1. Calculated based on the data in tables D2 and D3

Preliminary statistical data **Table D 9**

Gross added value in the goods production sector, by branches, in lei 1990, total and structure, averages of the years, period 1980-2000

Averages of years	**Gross added value**		**In agriculture**		**In industry**		**In constructions**	
	million lei	**%**	**million lei**	**%**	**million lei**	**%**	**million lei**	**%**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
1980-1984	535656	100	119879	22.4	364153	68.0	51624	9.6
1985-1989	584960	100	122805	21.0	405658	69.3	56497	9.7
1990-1994	417833	100	136594	32.7	246334	59.0	34905	8.3
1995-2000	346469	100	109505	31.6	199037	57.4	37927	11.0

Note: 1. Calculated based on the data in Table D 10

Gross added value in the goods production sector, by branches, in lei 1990, total and structure, annual series, period 1980-2000

Years	Gross added value		In agriculture		In industry		In constructions	
	million lei	%	million lei	%	million lei	%	million lei	%
1	2	3	4	5	6	7	8	9
1980	518900	**100**	98488	19.0	366758	70.7	53654	10.3
1981	503824	100	113269	22.5	340541	67.6	50014	9.9
1982	522719	100	138524	26.5	336744	64.4	47450	9.1
1983	547999	100	120966	22.1	375075	68.4	51958	9.5
1984	584837	100	128148	21.9	401646	68.7	55043	9.4
1985	580864	100	128031	22.0	395262	68.0	57571	9.9
1986	596957	100	121326	20.3	415848	69.7	59783	10.0
1987	597594	100	118809	19.9	417606	69.9	61179	10.2
1988	600118	100	126201	21.0	415670	69.3	58247	9.7
1989	549265	100	119658	21.8	383904	69.9	45703	8.3
1990	531052	100	171004	32.2	317690	59.8	42359	8.0
1991	417955	100	129074	30.9	258832	61.9	30048	7.2
1992	386584	100	118278	30.6	238424	61.7	29882	7.7
1993	370227	100	132675	35.8	204699	55.3	32853	8.9
1994	383348	100	131940	34.4	212023	55.3	39385	10.3
1995	416965	100	139223	33.4	231335	55.5	46407	11.1
1996	430662	100	140386	32.6	242750	56.4	47526	11.0
1997	371431	100	123581	33.3	212148	57.1	35702	9.6
1998	309226	100	94794	30.7	181744	58.8	32688	10.6
1999	278323	100	85886	30.9	160149	57.5	32288	11.6
2000	272207	100	73160	26.9	166093	61.0	32954	12.1

Note: 1. Calculated based on the data in tables D2 and D3

Preliminary statistical data **Table D 11**

Gross added value in the goods production sector, by branches in lei 1990, averages of the years, period 1980-2000

Averages of years	Gross added value	Transportation, communications	Trade	Education research, health and social assistance	Public administration	Financial and banking activities and insurance	Real estate transactions and others
	million lei	million lei	million lei	million lei	million lei	million lei	million lei
1	2	3	4	5	6	7	8
1980-1984	209781	55217	47761	28521	18407	22966	36909
1985-1989	225487	62035	52269	33295	20281	18738	38869
1990-1994	238451	54466	76240	30838	20847	27131	28929
1995-2000	282460	62612	84662	30200	22962	16899	65125

Note: 1. Calculated based on the data in Table D 12

Preliminary statistical data

Table D 12

Gross added value in the goods production sector, by branches in lei 1990, annual series, period 1980-2000

Years	Gross added value	Transportation, communications	Trade	Education research, health and social assistance	Public administration	Financial and banking activities and insurance	Real estate transactions and others
	million lei	million lei	million lei	million lei	million lei	million lei	million lei
1	2	3	4	5	6	7	8
1980	**205061**	57329	49244	27194	17640	16905	36749
1981	**212563**	57370	50015	30156	18388	17652	38982
1982	**196691**	53573	45920	27552	17603	17603	34440
1983	**212704**	52770	45464	27603	19484	30850	36533
1984	**221894**	55044	48163	30102	18921	31822	37842
1985	**221692**	56712	50697	34371	21482	20622	37808
1986	**218878**	58904	50113	33408	19342	18463	38648
1987	**239393**	70931	55858	32806	20393	19506	39899
1988	**234753**	67955	56482	32653	19416	17651	40596
1989	**212725**	55674	48196	33238	20774	17450	37393
1990	**207870**	45496	48634	36083	21964	21179	34514
1991	**237661**	45757	92196	34147	21171	17756	26634
1992	**252742**	52914	89020	29881	21166	32993	26768
1993	**243238**	63179	74551	27167	19585	32221	26535
1994	**250751**	64985	76801	26913	20349	31508	30195
1995	**253834**	54142	73830	30938	26016	35157	33751
1996	**268340**	65806	85547	32903	22666	21935	39483
1997	**264328**	61791	78268	24030	18537	11672	70030
1998	**290266**	60799	86949	31380	23535	11768	75835
1999	**298987**	63930	88469	32288	21310	10978	82012
2000	**319002**	69205	94910	29659	25705	9886	89637

Source: *Statistical yearbook of Romania*, 1991, 1993, 1006, 2001; Report of the National Bank of Romania 1995-2002

Note: 1. The data of the 1990-2000 period were calculated based on the added value by branches presented in tables D 2 and D 3.

Preliminary statistical data **Table D 13**

Dynamics of the gross added value in the services sector, by branches-resources in indexes, annual series, period 1980-2000

Years	Total %	Transportation, communications %	Trade %	Education, research health and social assistance %	Public administration %	Financial and banking and insurance activities %	Real estate transactions and others %
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1980	**100**	**100**	**100**	**100**	**100**	**100**	**100**
1981	103.7	100.1	101.6	110.9	104.2	104.4	106.1
1982	95.9	93.4	93.2	101.3	99.8	104.1	93.7
1983	103.7	92.0	92.3	101.5	110.5	182.5	99.4
1984	108.2	96.0	97.8	110.7	107.3	188.2	103.0
1985	108.1	98.9	103.0	126.4	121.8	122.0	102.9
1986	106.7	102.7	101.8	122.9	109.6	109.2	105.2
1987	116.7	123.7	113.4	120.6	115.6	115.4	108.6
1988	114.5	118.5	114.7	120.1	110.1	104.4	110.5
1989	103.7	97.1	97.9	122.2	117.8	103.2	101.8
1990	101.4	79.4	98.8	132.7	124.5	125.3	93.9
1991	115.9	79.8	187.2	125.6	120.0	105.0	72.5
1992	123.3	92.3	180.8	109.9	120.0	195.2	72.8
1993	118.6	110.2	151.4	99.9	111.0	190.6	72.2
1994	122.3	113.4	156.0	99.0	115.4	186.4	82.2
1995	123.8	94.4	149.9	113.8	147.5	208.0	91.8
1996	130.9	114.8	173.7	121.0	128.5	129.8	107.4
1997	128.9	107.8	158.9	88.4	105.1	69.0	190.6
1998	141.6	106.1	176.6	115.4	133.4	69.6	206.4
1999	145.8	111.5	179.7	118.7	120.8	64.9	223.2
2000	155.6	120.7	192.7	109.1	145.7	58.5	243.9

Note: 1. Calculated based on the data in tables D2 and D3

EXTERNAL SECTOR INDICATORS
THE EXTERNAL DEBT OF ROMANIA DURING 1864-2010

HISTORICAL AND METHODOLOGICAL COMMENTS

In the modern and contemporary period, Romania was a debtor state, a market of capital investment from developed countries.

By 1859, as a rule, the Romanian Principalities, did rarely contract external loans, confining themselves more to domestic loans; but they found themselves in a permanent debt situation, through the dependency obligations – the annual tribute - to the Ottoman Empire.

After the formation of the national state, in 1859, the major processes of institutionalization, modernization and building up the infrastructure called for increased expenses; these expenses were significantly covered through foreign loans. For the purpose of budgetary needs, domestic loans were also retained, but they were much smaller.

The first foreign loan was contracted in 1864 with the Stren Bank House in London accounting to £ 916,000 or Francs 4.6 million for a 22 years period, with a real interest rate of 16%.

Once with it, Romania joined the world debtor countries and remained in this situation for a 125 years period, namely until 1989 when, episodically, by paying back the whole external debt, it loses the debtor position. Next year, however, it again opens the external debt account, thus becoming again a debtor for an unpredictable period.

Contracting of the first loans of the 60s and 70s of the 19th century, was burdening, with rate differences of 20-30% and high interest rates of 10-17%, and it included the concession of the country's sources of revenue - the Customs revenue, the tobacco revenue etc. After the consolidation of the country, the conditions for foreign loans obtaining became more moderate, with a 4-5% interest rate and the normal course.

Most of the foreign loans of the Romanian State originated in the Berlin market, Germany thus becoming Romania's main creditor. In fact, Romania's loans by 1914 were granted by the great German financial groups: Disconto Gesellschaft, S. Bleichröder and A. M. Rothschild; this placed Romania in the sphere of interest of the German Empire, until World War I.

A key feature of the external loans of this period was that of their very long term. By the end of the 19th century, loans that were to be returned up to 1950-1960, were engaged.

When assessing the state of the external indebtness for the 1864-1914 period, it appears that a nominal amount of 2,161[44] million lei gold was contracted with foreign banks. Out of this it was only the amount of net 1,860 million lei that was received. For this real amount received by the Romanian State, the actual amount charged was paid and was to be paid, for the next 40 years, totaling 5,600 million lei, amortization and interest included in value of 3,730 lei more than the amount initially received.

The payments of these loans increased along with the size of the debt: in the first decade, 1864 -1873, 47 million lei, and in the last decade, 1905 - 1915, 1,022 million lei; this charged even more the state budget; in 1864 the payment of the external debt represented 14% and in 1905 - 37% of state expenditures.

But the most important indicator is the increase in annuity - amortization and interest - per capita; in 1864 - 2.2 lei; in 1884 - 9.45 lei, in 1914 – 1,915 lei per capita, thus growing faster than the national income. In 1912, the external annuity cut over 5% of the national income and the total external debt per capita - 272 lei - was roughly equal to the production of national income - 271 lei.

The positive result was that the predominant part of the foreign loans was productively used to build infrastructure, railways, public buildings etc. - 68%; investments and military endowments - 23%, and 9% to cover budget deficits.

In spite of the fact that the foreign loans constituted a task for the generations of the 1864-1914 periods and were extended up to those of 1950s, they were actually the only solution for the country's modernization, for the endowment with modern mechanized means of transport and communication, with defense equipment etc[45].

During the interwar period, the external obligations followed two trends: in the first part of the period - 1919-1931 - they increased, and in the second part - 1932-1940 - they decreased.

The causes and sources of the external commitments growth were Romania's external public debt inherited during the prewar period, Romania's succession external debt, the peace treaties, namely the share of the external debt for Transylvania and Bucovina of the former Austro -Hungarian Empire; the country's external debt contracted during the World War and thereafter until 1931 etc.

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[44] Gold leu = 0.32664 g gold, that is 1 gold gram cost 3.10 lei; the gold leu had the same standard and was equal to the French franc, the Swiss franc, the Italian lira, etc by 1916.

[45] Out of the amounts of the foreign loans the railway network of over 3,500 km was built, equipped with rolling stock, thousands of wagons and locomotives; the Danube and the Black Sea ports, the port silos were built, the country's telegraphy and telephony networks were set up, the major metal bridges over the country's roads and railways etc.

The declining trends of the external commitments and obligations concerned within of the 1932-1939 period consisted in non-contracting important new foreign borrowings; in suspending, in 1932, Romania's inter-war external debt of over 40 billion lei according to the resolutions of the international forums, in deferring the payment of part of the external debt. On the other hand, in the 1932-1936 period, as well, an influx of foreign capital into the country through bank and public loans was recorded, but of some lesser importance.

In the first interwar decade, the economic policy related to the foreign capital was dominated by the conception "by ourselves" which aimed to empower the domestic capital positions.

In the first part of the 1919-1931 period, the state debt combined the contracted loans during the neutrality and war years (1914-1918), needed for the payment of weapons and military equipment, the loans contracted in the early post-war years (1919-1922) for country's supply with consumer goods - cereals, foods, machines etc., when the domestic economic situation was disastrous. Their total rises in 1928, after final calculations, amounted to 39 billion lei.

Another chapter of the public debts is connected to the state debt to foreign oil companies; they represented the value of the oil installations destroyed by order of England, at the withdrawal of the Romanian authorities from Wallachia to Moldova in 1916, in order not to leave any fuel sources to the German occupier. Despite England had committed to pay these damages, but after the peace conclusion, these were passed onto the Romanian State; they amounted to approximatively 8.2 billion lei in 1928.

Regarding the liabilities resulting from aftermath of World War I, the most important chapter came from the obligation incumbent on Romania, in its capacity as debt successor of the former Austro-Hungarian Empire, namely the share for Banat, Transylvania and Bukovina. This debt was assessed at 650 million Fr (gold). But Romania conditioned its payment to recovering the damage caused by the war from the Central Powers. The country damages, calculated by the Romanian State, were estimated at 31 billion lei gold, plus the contracted debt connected to the war, treasury bills etc. Romania hoped to cover some of these huge amounts of damages through "the repair" that was to be received, under the peace treaties, from the obligations imposed to Germany.

But they gradually diminished; in 1920 the Allied Powers imposed Germany, as a defeated country, the amount of 269 billion marks gold, compensation payable in 42 years; out of it France was to receive 52%, England - 22%, Italy - 10%, Belgium - 8.0%, Serbia - 5.0% etc.; Romania was allocated only 1.1%. Later, Germany's debt was reduced by the

Dawes Plan (1924) by half, at 132 billion marks and by the Young Plan (1929) at only 38 billion marks. Romania appeared disadvantaged and frustrated, the diminished "repairs" not allowing it to pay any debts to the Allied Powers.

The growth of the external debt by 1932 is due mainly to two loans contracted: one for “stabilization” and one for “development” in 1929 and 1931 respectively; the former was contracted for the monetary stabilization in 1929, and it was necessary for stopping the inflation of the 1917-1926 period, which had depreciated the national currency - the leu - 36 times. However the high external financing conditioned the loans, requested by Romania, by the regulation of all the country's external financial litigations. The disputes between Romania and Germany were included among these conditions. The latter owed Romania large amounts of money: for the cereals and the oil exported to Germany during the neutrality period (329 million marks), for our country's gold storage having remained with the Reich Bank (78.9 million marks); for the equivalent value of overdrawn exchequer bills issued by Germany, in the occupied territory (1,692 million marks), for the Romanian deposits (329 million marks) in the banks of Berlin, sequestrated by the German Government on the country's joining the war (1916); a total, therefore, of more than 2.4 billion marks gold.

During the negotiations developed in Berlin in 1928, Romania was constrained by the international financial circles to accept, for all due repairs, the derisory amount of just 75.7 million marks, representing only 3.4% of the amount due by Germany and to waive any claims for repair compensation from any debtor.

As a result, by January 1st, 1929, the total external debt of Romania increased to 140 billion lei[46], without having contracted substantial loans in the postwar period, and without having received any amounts for covering the national economy needs. Two important foreign loans were added to this: the one of 1929 intended for the stabilization and the one of 1931 intended for Romania's development. Therefore, Romania's contracts with the Western financial centers, that is the new loans, amounted to USD150 million or over 25 billion stabilized lei - 1929. The payment of the loans for a 30 years’-period, interest included, amounted to approximatively three times the initial amounts. The loans were secured by a series of concessions granted to foreign creditors: tobacco production and sale, cigarettes, matches, national telephony operation, as well as agreements for the construction of the Bucharest - Oradea highway.

[46] Depreciated lei due to inflation, 1 leu gold = 32.2 lei 1 leu banknote or stabilized lei in 1929.

The country's indebtedness by 1932 exceeded the payment capacity of the Romanian State, especially since the economic crisis of 1929 - 1933 that deepened the public finance crisis. The annuity of the external public debt increased exactly in a period of great economic and financial difficulties, from 5.8 billion lei in 1928 to 8.1 billion lei in 1932. The State recorded a financial bottleneck in 1933. It suspended the payment of annuities, until 1934, when it resumed the payment of the external debt. We note that at the London Conference, during the crisis, the payment of inter-allied debts was suspended for one year, therefore those of Romania as well. Then, because of the deepening crisis, their payment was no longer resumed, so that Romani's total external debt actually decreased with 4.9 billion lei, which means almost a third. Consequently to the payments made by the Romanian State, in the following years, and a result of the conversion - extension - of some of its loans, the external debt was gradually reduced, reaching the amount of 63 billion lei[47] on April 1st 1940.

According to the calculations by G.M. Dobrovici, the country's external debt in the inter-war period, payable in foreign currency, was used in productive purposes only in a proportion of 23%, the remaining proportion of 77% having had an unproductive character. The author noted that this debt "that has never participated to investments in order to increase the national equipment producing revenue, will burden the national wealth for a long time and will be felt throughout the whole country's public and private economy"[48].

In conclusion, the foreign loans of the two decades between 1919-1939 did not exceed 700-800 million lei gold, while between 1900-1916, Romania, with half of the economic potential of the pre-war period, contracted and invested over 1,700 million lei gold, the foreign capital contributing to the increase in the productive forces of the country

On April 1st, 1941, at the beginning of the new World War, Romania introduced a number of exceptional measures meant to reduce the external debt, forced also by the insufficient financial resources for the large military expenditures. They concerned the unification of certain categories of state domestic and foreign annuities which were sealed to be paid in lei in Romania instead of being paid abroad in hard currency. These annuities, with an interest of 4% - 7% and various maturities, were unified into a single kind of annuity - a domestic one - with an interest of 4% - 4.5% annually, with two semester maturities. This unification merged the targeted loans - 19 domestic ones and 18 foreign ones - into a sole one with sole maturities, the payment deadline being unified as well and extended up to 1981,

[47] *Romania's Encyclopaedia*, 4th volume
[48] Gh. M. Dobrovici, *History of economic and financial development of Romania and its contracted loans 1823-1933*, Bucharest, 1934, p. 972.

respectively developing along four decades. All in all, by means of the unification and conversion, an initial cumulative capital in lei was created: 19 domestic loans of a nominal value of 4,355 billion lei and 18 foreign loans with a capital of 7,550 million lei[49].

On April 4th, 1941, three days after the unification decree, another decree, on the suspension of the external public debt service, for other older loans contracted abroad, was issued; the Romanian State, stopped the payment of all liabilities, annuities, external debts, for an unspecified period of time. The provisions of the unification and State, internal and external, annuity conversion decree, will be enforced in the next years, making the financial burden of the state budget more comfortable. Since they did not admit the external debt, foreign loan contracts concluded by the previous governments, the communist power, in development during 1945-1947, extended the suspension state. As a result, in the seventh decade after 1948, the prewar financial liabilities no longer appear in Romania's external flow[50].

Following the conclusion of the peace treaty with the Allied Powers, in 1947, according to which our country was considered a defeated country, in spite of the fact that it had participated to the war, with immense sacrifices for almost one year (1944 -1945), with all its human and material potential until the end of the war (May 1945), Romania had to endure both Germany's severe claims for the oil and foods supplied to the Reich, and not paid during 1940 -1944, as well as other claims, including war reparations imposed by the Allied Powers - that is the Soviet Union - under whose domination Romania was left by the Yalta understanding. In no other previous historical conflagrations did our country suffer so burdensome losses and liabilities on behalf of the both belligerent parties during 1940 -1947.

Firstly, by means of the economic agreements with the Reich, between 1939 - 1944, Germany imposed Romania non-equivalent trade relations in favor of the German partner indirectly, through the export and import prices overvalued at the fixed exchange rate of the German mark, throughout the war etc.; practically, Germany had, due to the war situation, a quasi-monopoly in the Romanian foreign trade. The bilateral trade was conducted through clearing or exchange of goods based on prices against goods, based on expense accounts; records and settlements were authorized by the entitled German bank which did not settled

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[49] Gh. M. Dobrovici, *Romania's financial and economic evolution during 1934 -1943*, Bucharest, 1944.

[50] After the change of the leadership of the communist State in 1965, with the view to restore the economy based on advanced Western technology, Nicolae Ceaușescu endeavours external measures of political opening; Romania's applications for loans are accepted by I.M.F. and other international financial institutions; one of the requirements of these fora was that of regulating Romania's situation regarding the suspended debt; in a few years the negotiations were concluded, the Romanian State accepting the payment of some reduced amounts; the only debt remaining in suspension, that is the one with the Swedish creditors, will be regulated later, after three decades.

Romania's balances periodically, so that in 1944, Germany had accumulated a considerable debt to our country[51]. The total damage of the "cooperation" with Germany was estimated to 446 million dollars[52], of which Romania, according to the peace treaty, in 1947, had no right to request anything and, thus, it received nothing.

The second category of losses for the Romanian economy resulted from the consequences of the war on its own territory, destruction, lootings, etc. and from the obligations arising from the international documents concluding peace. Through the Truce Convention (1945) and then the Peace Treaty (1947) heavy burdens were called for the Romanian economy; the Romanian State, treated as a loser, was forced to pay damages not only to the Soviet Union but also to the other allied countries for the losses inflicted to their investments in Romania as a result of the war. The war reparations imposed by the Truce Convention in favor of the Soviet Union amounted to 300 million USD in 1938, and were spread out over eight years and were payable in goods, equipment, means of transport etc. In addition, Romania was obliged to return the materials, facilities etc. or their value, captured from the occupied Soviet territory by Romanian troops during the anti-Soviet war, which exceeded the value of the damages. After 1949 some provisions of these liabilities have been amended[53].

After the imposition of the communist political regime in Romania, the process of establishing and building up the socialist economy started, which required significant investment resources; in the 50s and 60s they were obtained from the national income accumulation fund, and investment technical means - machines, equipment - for the industrialization were provided by domestic production and partly by imports from the CMEA countries. In both cases, the technical and technological level was below the Western advanced one, which would require the orientation towards imports in this area of the economic policies

During the 1950-1970 period, Romania's foreign economic relations were developed primarily by means of trading, goods exports and imports, and mainly with the socialist countries. For payments, annual clearing agreements were used, which, as a rule settled balanced[54]. By about 1970, Romania's balance of payments had no significant negative balances and did not affect the national income. The current account appeared loaded, mainly

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[51] Minister of Propaganda, Results of the economic „cooperation" with Germany and of our participation in Hitler's war, Bucharest, 1945.
[52] Ion Alexandrescu, *Romania's economy in the early post-war years (1945-1947)*, Bucharest, 1986.
[53] Costin C. Kirițescu, *The financial leu system rate and its precursors*, 3rd volume, Bucharest, 1997
[54] Gh. Stroe, *The 1971-1989 Balance of payments, The external debt crisis*, in: acad. N. N. Constantinescu, *Romania's economic history*, 2nd volume, Economic Publishing House, 2000.

with negative balance of trade, generated by imports of equipment and machinery, which were higher than exports.

After changing the country's political leadership in 1965, Ceausescu and his team designed Romania's opening to the Western world, thus activating economic and financial relations with developed and developing states. By means of laborious negotiations, in December 1971, our country, the only one of Soviet bloc, became a member of the International Monetary Fund and in 1972 a member of the World Bank, with the purpose to procure foreign loans. Romania was interested in obtaining loans from the West in order to finance imports of high technology from developed countries in order to accelerate the industrialization.

The international financial context in which Romania contracted and then paid the external debt seriously affected the situation of the national economy[55]. Since the late 60s the world economy witnessed emerging monetary crisis and economic phenomena; the monetary stability, cored over the gold convertibility of the dollar to other currencies was shaken by monetary devaluation phenomena in some countries, by inflation and escalation of prices for raw materials and consumer goods. The deepening of the crisis after 1968 produced the first restrictions for the convertibility of the dollar into gold and other strong currencies; for the first time in its history, US suspended in 1971 the free conversion of banknotes into gold, which triggered a chain of restrictions for the convertibility of other hard currencies; this affected the foreign exchange reserves of the states; the inflation, which was situated between 1-1.5% grew up to 4 - 5% in the eighth decade. An ounce of gold, which sold for $ 35 in 1971, reached in 1979 the amount of $220. The international currency, the US dollar, depreciated in a decade to less than half of its value.

During the 1970 - 1974 period, in order to compensate the value losses due to the depreciations, the large oil producing countries increased the oil prices more than 4 times, thus creating large imbalances in the global economy and increasing inflation; on the other hand, the purchasing power of the monetary reserves in dollars of the majority of the world states depreciated, thus worsening the conditions of contracting external loans, especially for the developing countries.

Consequently to these conjugated crisis phenomena, the international bank interests increased unprecedentedly; commissions were added to interests in order to compensate for depreciation and, in total, they reached in 1980 20% as compared to 3-3.5% in the 60s and 10-

[55] Dorel Oprescu, *The international financial system*, Bucharest, 1981.

14% in 1974 for loans in US dollars. By 1980, foreign banks' interest ratess plus other expenses for debtor countries came to double the external debt burden in 4 - 5 years. As a result, the deficit balance of payments increased unprecedentedly in the developing countries, the main world debtor, from $8 billion in 1973 to $53 billion in 1979. In order to unlock this part of the global economy, in the following decades, the international financial institutions reduced and also delayed partially some countries' external debt payments.

Under such unfavorable circumstances of the 60s and 70s, Romania contracted its largest loans; in the latter half of the eighth decade[56] the largest external debts were accumulated and their main repayments were placed towards the end of the same decade. The external loan amount increased as follows:

Year	**1972**	**1976**	**1977**	**1978**	**1979**	**1980**	**1981**
Million US dollars	30.2	2,812	3,582	5,074	7,173	9,557	21,000[57]

An amount of almost $21 billion[58] was reached with a rapid growth of $14 billion in four years. But since the foreign loan had also grace periods, the largest burden of repayment was after 1978, the external debt service amounting to over $1 billion in 1979. Romania entered a serious imbalance of the balance of payments due to the negative balance of trade, burdened by the prevalence of imports in the foreign trade.

Significant losses and the non-payment of Romania's benefits from the operations in joint ventures with foreign partners contributed to the high external debt, to the external payment difficulties of this period.

Joint ventures - with Romanian and foreign capital - for production and installation, marketing and banking were created in the early 70s, under the program of international cooperation. A number of 77 joint ventures were set up and operated by 1980; 8 of them in

[56] The first external loans were contracted from IBRD; in 1974 there were three loans in progress, amounting to $190 million, for the purchase of equipment and machinery, needed for the new industrial facilities (The highly alloyed and stainless steels enterprise in Târgoviște -$70 million, The Chemical fertilizer enterprise in Bacău - $60 million, and Termoelectrica in Turceni - $60 million). The loans were long-termed and developed over 15 - 25 years, bearing an interest at the rate of 7.25% with a grace period of 5 years. In the same year, a series of loans from the World Bank were contracted to achieve the 3 million Ha of irrigation. Large loans from the International Monetary Fund bearing an interest at the rate of 5% were also contracted. Ministry of Finance, Assessment Report based on the analysis of economic and financial balance sheet of 1974, Classified information no. 00261890 /March 25th, 1975.

[57] I.M.F. Memorandum, România, 1983.

[58] Former Finance Minister at the time, Petre Gigea - Gorun - estimated that in 1981 Romania had an external debt of $15 billion bearing interest rates of another $6 billion. The manner and the reason of Romania's negotiations with the IMF in the 80s are to be found on http: //www.Cotidianul. EN 15537 /.

Romania and 69 abroad, especially in the area of underdeveloped countries: Nigeria, Morocco, Liberia, Zambia, Gabon, Central African Republic, Zaire, D.R.Congo, Libya, Mauritania, Mexico, India, etc. Their objective was facilitating the Romanian exports of machinery and equipment, of enterprises producing cement, industrial constructions, irrigation, mining (copper, etc.), and the imports of some products as raw materials and feedstock for the Romanian economy. The Romanian Foreign Trade Bank ensured the equity capital for the Romanian party and loans for operations; the economic ministries, under whose competence the joint ventures fell, had the technological and managerial responsibility. The activity of joint ventures amounted to several hundred million dollars annually.

In the early years, positive activities were revealed in most of the companies, but afterwards ever deeper difficulties appeared in the in supply, in operating the equipment sent there, because of the local low-skilled labor force, of the poor management, etc. More and more companies did not fulfill their activity program either because of technological reasons, due to the lack of raw materials, insufficient working capital, or because of weak support from local authorities etc., or uncompetitive product prices. Thus, many of these joint ventures incurred debts, could not pay their suppliers, causing damages of millions of dollars and ultimately underwent bankruptcy, liquidation.

Early in the eighties the general situation of joint ventures was affected by the monetary and economic crisis triggered by the oil crisis and the suspension, in 1971, of the dollar convertibility, by the chain inflation of the national currencies.

In 1986, the last year for which we have archive information[59] on this issue, a partial assessment on Romania's foreign trade and on that of joint ventures, indicates a serious situation of crisis: in December 1986, only 34% of the goods export plan and that of facilities for 1987 was covered by orders in convertible currencies; the production and external marketing joint ventures recorded in 1986 "unsatisfactory results"; receivables uncollected for years reached $220 million; the joint ventures (5) in Romania accomplished their production plan only 30%; their exports reached 44% and the product sales on the Romanian market reached only 20.4% of the annual program.

Out of the 77 foreign joint ventures, existing in 1980, most were liquidated or ceased their activity; in 1986 five operated in Romania and seventeen abroad; out of these six were

[59] The information in this paragraph comes from the following sources: Annual reports based on the assessments of economic and financial results for the 1974 - 1986 period, presented by the Ministry of Finance (Bureau of classified documents - BDS- as strictly classified); Annual reports on the general account of the budgetary exercise, in different years; Centralized financial plan of the socialist economy in certain years; fulfillment of the international economic cooperation plan for the 1984 - 1987 period, reports drafted by the Ministry of Trade and International Economic Cooperation etc

proposed for liquidation, a company - for sale, three of them had a difficult financial and economic situation, which in the coming years brought about bankruptcy; that year all of them registered losses or debts of over $250 million. Finally, the action of cooperation in production and marketing through joint ventures with foreign partners was a big failure, mostly because of managerial causes and the political anti-economic “indications” of the communist dictatorship, a disaster that brought about damages of hundreds of millions of dollars for the Romanian economy, thus contributing to the reduction of the national income.

After 1989 efforts were made to recover claims from some partners, who until that moment refused the payment of the arrears. The damage sufferred by the national economy due to the unfavorable activities of the joint ventures, increased according to certain information, from $0.5 - 0.8 million annually in the early 80s to $70 - 90 million in the late 80s, when most of them lost their economic and financial heritage.

Since 1990 Romania has normalized its economic and financial relations with the Western world, has developed commercial and banking connections. In the early years, in order to solve the communist “inheritance” of a deep crisis of goods, especially consumer goods, imports were increased but the deficit of the balance of trades increased as well. At the same time, it was recourse to external loans for external payments and for budgetary needs. Thus, the external debt has accumulated year after year, increasing the country's payment obligations. The National Bank of Romania's statistics published the external debt account in US dollars until year 2000 and then in euros; in comparable international currency, ppc dollars 2000, this debt increased from 1,359 million in 1991 to 10,430 million in 2000 and to 99,081 million in 2010, returning to its highest level of $4,623 comparable per capita.

The share of the debt accumulated in a quarter-century that was devoted to the economic development, to the production of new value meant to contribute to its payment as well, remains a requirement for research. We note that the series of the external debt up to 1990, regarded mainly the public debt; the national economy debt until 1947 included however the public debt of several municipalities, of certain public institutions etc. as well as that of several private companies - banks, industrial and commercial companies; the share of their size was not significant. During the 1948-1990 period, the external debt obligations were represented exclusively by the public external debt of the State. The chapter on the external debt was drafted to show Romania's international financial position in the last century and a half and to state the evolution causes and the dimensions of the balance of payments in relation to the GDP, with the purpose to calculate the net national product - the national income.

The External Debt 1

The Public External Debt in Current Currency and Comparable US Dollars 2000, Total, Per Capita and Related to the Gross Domestic Product, during the 1864 – 2010, Selected Years

Years	External Public Debt in hard currency[1] current million US dollars	External Public Debt in hard currency[1] 2000 million US dollars 2000	Gross Domestic Product[6] million US dollars	Share of the External Debt in GDP col.(4/5) %	Per capita External Public debt dollars 2000	Per capita Gross Domestic Product dollars 2000
1	2	3	4	5	6	7
1864	10.8	103,5	2577	4.0	25.30	630
1868	16.0	184,5	2652	7.0	43.94	632
1878	75.9	1273,6	3331	38.2	283.91	743
1882	95.4	1572,2	4297	36.6	335.37	917
1902	266.3	4591,0	6293	25.3	741.32	1,016
1914	372.1	5001,0	8192	61.0	643.55	1,054
1921	254.2	2059.0	12960	15.9	130.90	824
1927	518.7	4537.1	18671	24.3	264.57	1,089
1929	828.6	6960.2	19650	35.4	394.60	1,114
1933	512.4[3]	5790.1	18981	30.5	310.41	1,018
1936	553.0	5695.9	21892	26.0	294.83	1,133
1940	627.2	6397.4	15038	42.5	481.66	1,131
1945	744.0	5952.0	9863	60.4	378.10	627
1950-1954	75.2	440.5	28,375.4	1.8	26.8	1.699.6
1955-1959	- - -	- - -	39,869.2	- - -	- - -	2,240.6
1960-1964	- - -	- - -	55,652.8	- - -	- - -	2,976.6
1965-1969	- - -	- - -	84,700.4	- - -	- - -	4,349.8
1970-1974	171	500.9	129,653.4	0.3	24.0	6,270
1975-1979	4,212.8	9,434.5	179,123.2	5.1	433.4	8,214.4
1980-1984	9,371.4	15,364.8	211,035.6	7.4	685.4	9,400.6
1985-1989	4,451.4	6,212.4	234,304.6	2.6	271.9	10,215.8
1990-1994	2,548.0	2,854.4	182,433.2	1.6	125.2	7,950.4
1995-2000	8,805.8	8,805.5	183,594.7	4.8	390.9	8,144.8
	mil. euro[5]				mil. euro	
2001-2005	20,268.4	21,206.8	211,147.2	9.8	974.7	9,684.6
2006-2010	69,149.6	78,141.8	273,437.6	28.4	3,635.9	12,715.8

The External Debt 2

The Public External Debt in Current Currency and Comparable US Dollars 2000, Total, Per Capita and Related to the Gross Domestic Product, during the 1864 – 2010, Selected Years

Years	External Public Debt in Hard Currency[1]		Gross Domestic Product[6] million US dollars 2000	Share of the External Debt in GDP col.(4/5) %	Per capita	
	current million US dollars	comparable[2] million US dollars 2000			External Public Debt dollars 2000	Gross Domestic Product dollars 2000
1	2	3	4	5	6	7
1864	10.8	103.5	2,577	4.0	25.30	630
...						
1868	16.0	184.5	2,652	7.0	43.94	632
...						
1878	75.9	1,273.6	3,331	38.2	283.91	743
...						
1882	95.4	1,572.2	4,297	36.6	335.37	917
...						
1902	266.3	4,591.0	6,293	73.0	741.32	1,016
...						
1914	372.1	5,001.0	8,192	61.0	643.55	1,054
...						
1921	254.2	2,059.0	12,960	15.9	130.90	824
...						
1927	518.7	4,537.1	18,671	24.3	264.57	1,089
...						
1929	828.6	6,960.2	19,650	35.4	394.60	1,114
...						
1933	512.4[3]	5,790.1	18,981	30.5	310.41	1,018
...						
1936	553.0	5,695.9	21,892	26.0	294.83	1,133
...						
1940	627.2	6,397.4	15,038	42.5	481.66	1,131
...						
1945	744.0	5,952.0	9,863	60.3	378.10	627
...						
1950	112.5	681.8	21,897	3.1	41.80	1,342
1951	75.7	431.5	28,059	1.5	26.20	1,704
1952	37.5	208.1	27,979	0.7	12.91	1,682
1953[7]	- - -	- - -	31,523	- - -	- - -	1,871
1954	- - -	- - -	32,419	- - -	- - -	1,899
1955	- - -	- - -	40,099	- - -	- - -	2,315
1956	- - -	- - -	34,884	- - -	- - -	1,994
1957	- - -	- - -	41,495	- - -	- - -	2,327
1958	- - -	- - -	38,947	- - -	- - -	2,157
1959	- - -	- - -	43,921	- - -	- - -	2,410
1960	- - -	- - -	48,168	- - -	- - -	2,617
1961	- - -	- - -	52,238	- - -	- - -	2,813
1962	- - -	- - -	54,096	- - -	- - -	2,896
1963	- - -	- - -	58,988	- - -	- - -	3,135
1964	- - -	- - -	64,774	- - -	- - -	3,422
1965	- - -	- - -	70,122	- - -	- - -	3,685
1966	- - -	- - -	78,007	- - -	- - -	4,075
1967	- - -	- - -	85,570	- - -	- - -	4,437
1968	- - -	- - -	91,988	- - -	- - -	4,664
1969	- - -	- - -	97,815	- - -	- - -	4,888

1970	- - -	- - -	107,592	- - -	- - -	5,312
1971	12.2	42.2	115,570	0.0	2.1	5,646
1972	30.2	100.0	130,348	0.1	5.2	6,308
1973	51.6	162.0	146,695	0.1	7.8	7,043
1974	590	1,699.3	148,062	1.1	80.8	7,041
1975	1992	5,239.0	151,409	3.5	246.7	7,127
1976	2876	7,161.2	168,205	4.3	333.6	7,843
1977	3684	8,620.0	178,309	4.8	397.8	8,233
1978	5170	11,322.0	194,780	5.8	517.0	8,912
1979	7342	14,830.1	202,913	7.3	672.1	8,957

Years	**External Public Debt in Hard Currency[1]**		**Gross Domestic Product[6] million US dollars 2000**	**Share of the external debt in GDP (col.4/5) %**	**Per capita**	
	current	**Gross Domestic Product[6]**			**External Public Debt US dollars 2000**	**Gross Domestic Product US dollars 2000**
	million US dollars	**million US dollars 2000**				
1	**2**	**3**	**4**	**5**	**6**	**7**
1980	9,810	18,148.5	198,465	9.1	817.6	8,939
1981	10,564	17,863.0	198,606	9.0	799.2	8,885
1982	9,969	15,880.0	206,650	7.7	706.5	9,194
1983	9,077	13,903.0	219,220	6.3	616.5	9,720
1984	7,437	11,027.0	232,237	4.7	487.4	10,265
1985	6,830	9,792.0	232,024	4.2	430.9	10,211
1986	6,875	9,730.0	237,399	4.1	426.3	10,402
1987	6,272	8,531.0	239,415	3.6	371.9	10,437
1988	2,106	2,787.0	238,305	1.2	120.9	10,337
1989	174	222.0	224,380	0.1	9.6	9,692
1990	230	282.0	211,813	0.1	12.2	9,127
1991	1,143	1,359.0	184,409	0.7	58.6	7,954
1992	2,479	2,855.0	168,096	1.7	125.3	7,376
1993	3,357	3,784.0	170,599	2.2	166.3	7,497
1994	5,531	5,992.0	177,249	3.4	263.6	7,798
1995	5,458	5,953.0	189,867	3.1	262.5	8,371
1996	8,349	7,685.0	197,436	3.9	339.9	8,733
1997	9,503	9,612.0	185,390	5.2	426.3	8,223
1998	9,899	9,991.0	176,530	5.7	444.0	7,845
1999	9,136	9,162.0	174,372	5.3	408.0	7,764
2000	10,490	10,430.0	177,973	5.9	464.9	7,933
	mil. euro[5]				mil. euro	
2001	14,685	13,206.0	187940	7.0	589.3	8,387
2002	16,200	14,752.0	197,728	7.5	680.4	9,120

2003	17,835	19,051.0	208,584	9.1	876.6	9,598
2004	21,708	24,786.0	226,026	11.0	1,143.6	10,429
2005	30,914	34,239.0	235,458	14.5	1,583.5	10,889
2006	41,196	44,637.0	254,501	17.5	2,068.1	11,791
2007	58,531	67,342.0	271,943	24.8	3,126.8	12,627
2008	72,354	87,278.0	294,901	29.6	4,058.7	13,714
2009	81,205	92,371.0	274,078	33.7	4,302.5	12,766
2010	92,462	99,081.0	271,765	36.5	4,623.3	12,681

Sources: *Explanatory statement to the State general budget, 1877-1948.*

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Notes:

[1] The State external debt during 1862 - 1940, contracted in foreign currencies, according to the banking institutions - sterling, French francs, German marks, etc., in the State budgets and in biographical sources, especially in the works of Gh. N. Dobrovici, wherefrom we have used data, is presented as converted into current lei according to the average exchange rate. With the purpose to transpose the amount in comparable currency, ppc dollars, the external debt, presented in current currency was converted into US dollars and then into current ppc dollars 2000 according to Samuel M. Williamson's paper methodology.

[2] The State external debt during 1862 - 1940 was contracted in foreign currencies, according to the banking institutions. As a monetary unit of comparison, for the entire period, the US dollar was used according to the

purchasing power of the GDP in 2000 and the degree of impairment during the 1862 - 2010 period; if the dollar level in 2000 was equal to 100 at the beginning of the period, that is in year 1862, it was equal to 6.96; it means that the US dollar reached, in year 2000, a depreciation by 14.38 times, as compared to year 1862, the dollar thus representing, in year 2000, only 6.96 cents of the dollar value in 1862.

[3] According to the Hower moratorium, the external debt diminished after 1931, as a result of the suspension of the obligations to pay post-war inter-allied compensations belonging to Romania. Later they were totally cancelled.

[4] Only the payment obligations of the 1947 – 1953 period, according to the Armistice Convention (19450 and the Peace Treaty (1947) due to the Soviet Union. Romania's external debt by 1940 was suspended in April 1941 and its payment was not resumed because of the war.

[5] Since 2001, the external debt has been expressed in current Euro currency. It was converted into dollars at the average current annual currency according to the methodology by Samuel Williamson and then in ppc dollar 2000 to ensure comparability.

[6] The gross domestic product according to the data in Part I/1, of table A 2.

[7] During 1953 - 1970 there were not registered significant amounts of Romania's external debt.

THE BOP CURRENT ACCOUNT BALANCE OF ROMANIA DURING 1862-2010

HISTORICAL AND METHODOLOGICAL COMMENTS

In the modern and contemporary era, in the poorly developed agrarian and predominantly agrarian countries - with massive foreign capital investments and large debts contracted with international financial centers, and therefore value exporters - interest, profits, etc., - the national product synthetic indicator expresses rather the level and dynamics of long-term revenue of the national economy.

The economic literature statistic on the current account provided data only since the 70s of the 20th century; for the previous period, that is retrospectively back to 1860, calculations were not performed. Thus, in order to determine the 1860-2010 national product indicator it is necessary to draft the data series of the current account balance for the period they do not exist.

Therefore, we conducted researches on the country's balance of external financial relations. One should note that, in the surveyed period, Romania did not contract loans and public or private credits abroad, failed to obtain foreign revenues, etc.; on the contrary, important values, varying in different periods between 5% and 80% of the domestic product, were transferred through various channels, by virtue of market mechanisms; if we add the fact that an increasingly important part of the non-agricultural, industrial-banking-commercial, national wealth became the property of foreign companies, Romania's debtor position, with all the economic and social consequences arising from this, had already been decided for an imprecise period of time.

For a century and a half, the balance of payments accounts witnessed substantial changes, the current ones based on the accounting methodology for the national accounts, applied in Romania after 1990. By then, in the external financial relations, managed by the Ministry of Finance, the account inflow and outflow amounts were recorded systematically in different categories of balance of payments which were not published; since 1860 until the mid-twentieth century the books of external debits and credits were made by the State Accounting Directorate of the Ministry of Finance. Researches on the balance of payments accounts became more frequent in the interwar period.

Therefore, based on the existing information, calculations were made, in the spirit of the meaning and content of the actual amounts, corresponding to the current account balance configuration. Depending on the existing information and opportunities to determine the sources of the current account balance, three tables of annual data, covering the entire investigated interval, were created, namely for: 1) the 1862-1947period; 2) the 1950-1989 period; 3) the 1990-2010 period. The statistic information and resources are historically different so as the components and the data accuracy vary; the size of the amounts in the first period, 1862-1947, is more relative, becoming more accurate in the second period, 1950-1989, and measured with the accuracy and method of the national accounts by the National Bank of Romania, during the 1990-2010, since after 1990, it was its attributions to draft the balance of payments.

The currency in which the data were calculated was the gold leu for 1913, the US dollar for the 1862 - 1947 period, and the euro for the 1950-2000 and 2001-2010 periods. They were converted, according to the explanations in the notes to the statistical tables, in comparable international currency, that is ppc dollars 2000 for the entire period, 1862 - 2010.

The determining relation between the external debt and the current account balance imposed a special paragraph devoted to the calculation and explanation of the evolution of the Romanian State's external financial obligations during the 1864-2010 period, which complete the understanding, argumentation of the current account balance.

For the first period, 1862-1947[60], the foreign-held balances, interests, commissions, exchange differences on loans and public credits, as well as important expenditures abroad, particularly up to the agrarian reform of 1921, made by the Romanian big landowners who lived, in large number, in France, Italy, Germany; there, a significant proportion of the estate revenues and, in many cases, even the value obtained from the sale of properties was consumed; the landowners formed a specific social group, officially called the “absentees”. The payments for voyages, the balance of emigrants and immigrants' incoming and outgoing amounts (remittences), the balance of foreign legations' expenses in Romania and that of the Romanian legations abroad etc. were included in the transfers.

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[60] In 1929, the State Statistics Institute published a statement named Romania's Balance of Payments for 1926, 1927 and 1928 requested by the League of Nations. It is actually the first official balance of payments developed and published. Important seem to appear the positions for which Passive or Exit payments were made. For instance in 1928, in million lei current prices: interests on interstate debts - 11 million lei; interests and dividends on the State and municipal public debt - 3,912 million lei; interests, dividends on foreign short-term capital - 480 million lei; payments for sea and river transport - 48 million; taxes for Romanian ships in foreign ports - 67 million; commissions, insurance premiums, etc., - 12 million; PTT royalties - 28 million; funds sent by immigrants abroad, by Romanian tourists to foreign countries - 1,188 million; expenses of Romanian legations, consulates abroad - 349 million; fees for foreign citizens having served Romania - 4 million; and so on. All in all, without the balance of the trade balance - 9,099 million; plus passive foreign trade balance 5,300 million lei we achieve the external balance picture of 14,393 million lei. Thus after the calculation of the balance accounts, during the year taken as an example - 1928, Romania could have financed its balance of payments through foreign funds and massive exports of goods.

We note that during 1862-1876, the annual traditional tribute of 923 million lei was paid to the Otoman Porte from the country's budget; in 1863, following the monastery estate impropriation, with farmlands, vineyards, forests, etc., 1/3 of the country's surface was donated, by different rulers and boyars to the Athos holy places, and the Romanian State had to pay compensations of 14.2 million lei. We had leeway to separate data for the interests on foreign loans and their depreciation for the 1864 - 1912 period, with the help of Gh. M. Dobrovici who calculated the total amount of 2,053 million gold lei. We distributed it in annual amounts for the 1864 -1912 period, proportional to the size of each year annuities. We note that, in the absence of data, we did not include interests, commissions, etc., payable for external loans of municipalities, local credit unions, professional unions etc. However they held a small share in the external debt.

For the 1941-1947 period, that is the war and postwar periods, the amounts are: 1. for the 1941 - 1944 period, Germany's unpaid debt, for the Romanian goods exports in clearing, amounting to 62,459 lei in 1938, that is $446 million ($1 = 140lei). These amounts would have represented $318.6 million in 1913 - the dollar being depreciated in January 1934 by 41%. Since in 1913, $1 = 5.18 lei, and thus $318.6 million = $1,650 million lei, which allocated over four years, 1941-1944, mean 412.5 million lei annually; 2. During the 1945-1947, according to Alexandrescu's data, Romania paid to the Soviet Union 1938 $1,200 million, out of which $500 million refunds - equivalent value of the goods transferred to Romania from the occupied territory of the Soviet Union during the 1941-1943 period. The remaining 1938 $700 million or 1913 $421.7 million or 2,184.4 million gold lei represented reparations to the Soviet Union. These sums amounted to an average of 728 million in 1913 lei.

Besides these transfer estimates, Romania's debt increased, as it can be seen from the table below, with the negative balance of the balance of trade in 34 years out of eight decades.

For the next period, 1950-1989, for the current account balance, we have at our disposal the main data calculated in US dollars by Gh. Stroe in “Romania's Economic History”, 2nd volume, coordinator Academician N. N. Constantinescu. The 1990-2010 period is totally covered with data on the current account balance, in dollars for the 1990 - 2000 period and in euros for the 2001 - 2010 period, published in the Annual Reports of the National Bank of Romania.

Balance I 1

Current account balance[1], according to the main resources, in lei 1913 comparable currency and in ppc 2000 international dollars, averages of the 1862-1947 period

Years	Current account balance			Total (col 6+7+8)	Interests[2], comissions[5], on external public loans and others[4]	Private external expenditures[3]	Interests, benefits, Non-resident private companies	Balance of trade
	million dollars		million lei 1913 (col 5+9)					
	ppc 2000	1913		million lei 1913	million lei 1913	million lei 1913	million lei 1913	million lei 1913
1	2	3	4	5	6	7	8	9
1862-1866	81.6	4.5	23.5	-27.7	6.1	21.4	0.4	51.3
1867-1871	137.1	7.6	39.6	-33.4	8.9	23.7	0.8	72.9
1872-1876	1.9	0.1	0.6	-49.3	22.3	25.3	1.7	49.8
1877-1881	-413.3	-23.0	-119.3	-38.4	33.3	27.5	3.0	-80.9
1882-1886	-478.0	-26.6	-137.9	-70.8	36.4	30.2	4.2	-67.2
1887-1890	-441.8	-24.6	-127.5	-84.2	43.6	35.0	5.6	-43.3
1891-1895	-597.6	-33.3	-172.5	-95.5	48.6	39.7	7.2	-76.9
1896-1900	-647.9	-36.1	-187.0	-112.3	59.8	41.4	11.1	-74.7
1901-1905	-216.2	-12.0	-62.4	-124.1	65.3	42.5	16.3	61.7
1906-1910	-164.0	-9.1	-47.3	-139.7	66.9	43.5	29.3	92.4
1911-1914	-520.6	-29.0	-150.2	-188.9	78.6	44.4	65.9	38.6
1920-1924	-844.1	-47.0	-243.6	-193.1	92.5	0.0	100,6	-50.5
1925-1929	-893.2	-49.8	-257.8	-254.1	73.5	0.5	180.1	-3.6
1930-1934	-581.7	-32.4	-167.9	-303.4	84.9	2.3	216.2	135.5
1935-1939	75.7	4.2	21.8	-218.6	22.5	1.5	194.6	240.5
1940-1944	-1033.1	-48.6	-251.8	-312.9	274.2	- - -	38.74	61.1
1945-1947[3]	-613.9	34.2	-177.1	-174.2	153.0	- - -	21.2	-3.0

Sources: See sources and notes to Table Romania's external debt.

Notes: 1 Calculated according to the data in table Balance I 2.

2, 3, 4, 5 See Table Balance I 2.

Balance I 2

Current account balance[1], according to the main resources, in lei 1913 comparable currency and in ppc 2000 international dollars, annual series of the 1862-1947 period

Years	Current account balance			Total (col 6+7+8)	Interests[2], commissions[5], on external public loans and others[4]	Private external expenditures[3]	Interests, benefits, non-resident private companies	Balance of trade
	million dolars		million lei 1913					
	ppc 2000	1913	(col 5+9)	million lei 1913	million lei 1913	Million lei 1913	million lei 1913	million lei 1913
1	2	3	4	5	6	7	8	9
1862	102.6	5.7	29.6	-19.6	0.9	18.6	0.1	49.2
1863	45.0	2.5	13.0	-35.8	15.1	20.5	0.2	48.8
1864	147.3	8.2	42.5	-27.2	4.6	22.3	0.3	69.7
1865	56.5	3.1	16.3	-27.4	4.4	22.6	0.4	43.7
1866	56.5	3.1	16.3	-28.8	5.4	22.9	0.5	45.1
1867	30.1	1.7	8.7	-31.2	7.5	23.1	0.6	39.9
1868	250.2	13.9	72.2	-35.0	10.9	23.4	0.7	107.2
1869	110.5	6.2	31.9	-34.8	10.3	23.7	0.8	66.7
1870	74.5	4.2	21.5	-34.6	9.8	23.9	0.9	56.1
1871	220.0	12.3	63.5	-31.3	6.1	24.2	1.0	94.8
1872	93.9	5.2	27.1	-37.1	11.5	24.5	1.1	64.2
1873	71.7	4.0	20.7	-39.0	12.7	24.8	1.5	59.7
1874	-127.2	-7.1	-36.7	-48.6	21.7	25.2	1.7	11.9
1875	-56.8	-3.2	-16.4	-60.5	32.8	25.7	2.0	44.1
1876	28.1	1.6	8.1	-61.2	32.8	26.2	2.2	69.3
1877	-888.1	-49.5	-256.3	-61.8	32.7	26.6	2.5	-194.5
1878	-527.1	-29.4	-152.1	-62.6	32.9	27.0	2.7	-89.5
1879	165.3	9.2	47.7	63.5	33.0	27.5	3.0	-15.8
1880	-350.7	-19.5	-101.2	-64.7	33.5	28.0	3.2	-36.5
1881	-465.7	-25.9	-134.4	-66.2	34.3	28.4	3.5	-68.2
1882	-308.4	-17.2	-89.0	-64.9	32.4	28.8	3.7	-24.1
1883	-717.7	-40.0	-207.1	-67.8	34.6	29.3	3.9	-139.3
1884	-626.5	-34.9	-180.8	-69.9	36.0	29.8	4.1	-110.9
1885	-323.7	-18.0	-93.4	-72.8	37.5	30.9	4.4	-20.6
1886	-413.8	-23.1	-119.4	-78.4	41.6	32.1	4.7	-41.0
1887	-422.4	-23.5	-121.9	-82.9	44.5	33.3	5.1	-39.0
1888	-468.5	-26.1	-135.2	-81.6	41.8	34.4	5.4	-53.6
1889	-621.7	-34.6	-179.4	-85.6	44.3	35.6	5.7	-93.8
1890	-254.7	-14.2	-73.5	-86.7	43.9	36.8	6.0	13.2
1891	-520.1	-29.0	-150.1	-88.1	43.9	37.9	6.3	-62.0
1892	-651.1	-36.3	-187.9	-92.5	46.7	39.1	6.7	-95.4
1893	-539.9	-30.1	-155.8	-96.0	48.8	40.3	6.9	-59.8
1894	-785.2	-43.7	-226.6	-98.7	50.5	40.5	7.7	-127.9
1895	-491.7	-27.4	-141.9	-102.4	53.1	40.7	8.6	-39.5
1896	-414.8	-23.1	-119.7	-105.8	55.4	41.0	9.4	-13.9
1897	-832.7	-46.4	-240.3	-108.7	57.2	41.2	10.3	-131.6
1898	-755.8	-42.1	-218.1	-111.4	59.0	41.4	11.0	-106.7
1899	-1,037.1	-57.8	-299.3	-115.2	61.6	41.7	11.9	-184.1
1900	-199.3	-11.1	-57.5	-120.5	65.9	41.9	12.7	63.0

Years	Current account balance			Total (col 6+7+8)	Interests[2], commissions[5], on external public loans and others[4]	Private external expenditures[3]	Interests, benefits, non-resident private companies	Balance of trade
	million dollars		million lei 1913 (col 5+9)					
	ppc 2000	1913		million lei 1913	million lei 1913	million lei 1913	million lei 1913	million lei 1913
1	2	3	4	5	6	7	8	9
1901	-204.4	-11.4	-59.0	-120.4	64.7	42.1	13.6	61.4
1902	-104.7	-5.8	-30.2	-121.7	65.0	42.3	14.4	91.5
1903	-126.1	-7.0	-36.4	-122.1	64.4	42.5	15.2	85.7
1904	-603.6	-33.6	-174.2	-124.7	65.9	42.8	16.0	-49.5
1905	-41.9	-2.3	-12.1	-131.7	66.6	43.0	22.1	119.6
1906	-221.8	-12.4	-64.0	-133.3	63.6	43.2	26.5	69.3
1907	-47.5	-2.6	-13.7	-137.2	64.7	43.3	29.2	123.5
1908	-594.6	-33.1	-171.6	-137.0	64.7	43.5	28.8	-34.6
1909	-156.3	-8.7	-45.1	-141.9	67.0	43.7	31.2	96.8
1910	199.9	11.1	57.7	-149.1	74.5	43.9	30.7	206.8
1911	-135.1	-7.5	-39.0	-161.0	75.6	44.1	41.3	122.0
1912	-593.6	-33.1	-171.3	-175.5	75.7	44.3	55.5	4.2
1913	-411.7	-22.9	-118.8	-199.5	76.6	44.5	78.4	80.7
1914[7]	-941.9	-52.5	-271.8	-219.4	86.6	44.6	88.2	-52.4
1920	-1,469.3	-81.9	-424.0	-98.6	98.6	0.0	- - -	-325.4
1921	-1,288.0	-71.8	-371.7	-98.6	98.6	0.0	- - -	-273.1
1922	-538.2	-30.0	-155.3	-243.0	69.5	0.1	173.4	87.7
1923	-303.6	-16.9	-87.6	-280.3	81.3	0.1	198.9	192.7
1924	-621.7	-34.6	-179.4	-245.0	1,14.4	0.1	130.5	65.6
1925	-689.6	-38.4	-199.0	-177.8	57.7	0.2	119.9	-21.2
1926	-542.7	-30.2	-156.6	-184.9	66.9	0.1	117.9	28.3
1927	-845.5	-47.1	-244.0	-355.0	84.2	0.2	270.6	111.0
1928	-1,163.3	-64.8	-335.7	-217.1	77.1	0.7	139.3	-118.6
1929	-1,225.0	-68.2	-353.5	-335.9	81.8	1.3	252.8	-17.6
1930	-1,143.5	-63.7	-330.0	-474.1	99.0	7.6	367.5	144.1
1931	-361.1	-20.1	-104.2	-318.4	1,14.9	3.2	200.3	214.2
1932	-707.6	-39.4	-204.2	-396.4	1,06.3	0.3	289.8	192.2
1933	-285.9	-15.9	-82.5	-189.5	70.5	0.2	118.8	107.0
1934	-410.3	-22.9	-118.4	-138.6	33.6	0.2	104.8	20.2
1935	321.2	17.9	92.7	-158.3	23.4	0.4	134.5	251.0
1936	587.0	32.7	169.4	-185.2	23.8	0.9	160.5	354.6
1937	861.1	48.0	248.5	-137.7	23.6	1.4	112.7	386.2
1938	-796.7	-44.4	-229.9	-323.4	25.3	3.0	295.1	93.5
1939	-594.3	-33.1	-171.5	-288.5	16.4	1.9	270.2	117
1940[6]	186.7	10.4	54.0	-153.1	7.6	- - -	145.5	207.1
1941	-779.0	-43.4	-224.7	-359.3	340.8	- - -	18.5	134.6
1942	-1,812.4	-56.4	-291.9	-353.0	340.8	- - -	12.2	61.1
1943	-1,701.7	-94.8	-491.1	-354.4	340.8	- - -	13.6	-136.7
1944	-1,059.1	-59.0	-305.4	-344.7	340.8	- - -	3.9	39.3
1945	-599.5	33.4	-172.9	-172.1	153.0	- - -	19.1	-0.8
1946	-639.0	35.6	-184.4	-180.4	153.0	- - -	27.4	-4.0
1947	-603.1	33.6	-174.1	-170.0	153.0	- - -	17.0	-4.10

Source: See sources and notes to Table Romania's foreign public debt.

Note:1. All the statistics sources consulted, including the balance of payments during the inter-war period drafted by various authors to estimate, capital inflows and outflows were calculated at net balance transfers with no value across the border: there were not taken into consideration the calculations for refunds of foreign capital placed in Romania, external payments for Romanian freight to other states and foreign cashing for transporting goods in transit through Romania etc., etc.

2. Interests, fees, exchange differences on loans and external public credits were taken into account as net transfers.

3. In what concerns expenditures abroad, especially by World War I, made by the Romanian big landowners who lived, in large numbers, in France, Italy, Germany; where a significant proportion of the estate revenues and, in many cases, even the value obtained from the sale of properties was consumed and the landowners formed a specific social group, officially called the “absentees”. The payments for voyages, the balance of emigrants and immigrants' incoming and outgoing amounts, the balance of foreign legations' expenses in Romania and that of the Romanian legations abroad etc. were included in the transfers..

4. During 1862-1876, the annual traditional tribute of 923 million lei was paid to the Ottoman Porte from the country's budget and in 1863, following the monastery estate impropriation, with farmlands, vineyards, forests, mills, etc., 1/3 of the country's surface was donated, by different rulers and boyars to the Athos holy places, and the Romanian State paid compensations of 14.2 million lei.

5. Separate data on interests on external public loans and on their depreciation are available only until 1912 because of Gh. M. Dobrovici who calculated them for the 1864-1912 period amounting to a total of 2,053 million lei gold. We distributed the annual amounts for the period 1864-1912 in proportion with the annuities.

6. For the 1941-1947 period, that is the war and postwar periods, the amounts are: 1. for the 1941 - 1944 period, Germany's unpaid debt, for the Romanian goods exports in clearing, amounting to 62,459 lei in 1938, that is $446 million ($1 = 140lei). Since 1913 up to 1938, the dollar devalued up to the rate $1 = 5.18 lei, and thus 1913 $263 million = 1,363 million lei, which allocated over four years, 1941-1944, mean 340.8 million lei annually. Practically, Germany's unpaid debt represented losses for Romania.

No other amounts were paid after 1940 in external debt account since after the outbreak of the World War, external annuities payment was suspended in April 1941. Not even after the peace conclusion was the payment of the pre-1940 external obligation on payment resumed; the communist regime after 1948, did not accept the external financial obligations contracted by the previous governments. During the post-war years, according to the Armistice Convention, 1938 $300 million were paid to the Soviet Union, spread over 8 years in goods as war compensations; to all this added were, reimbursements or values of the goods brought from the occupied territory of the Soviet Union during the 1941-1943 period and the administration of the Transnistrian Government organized by the Romanian State as well as the expenditures incurred by Romania for the maintenance and supplies for the Soviet troops after August 23rd, 1944.

7. N. Xenopol, former minister of Industry and Trade, in his book "La Richesse de la Roumanie", published in 1916, was the first researcher to estimate the transfers of value, from individuals abroad, before the World War; they were assessed at approximately 200 million lei gold annually. The debt main positions summarized:

- Annuity of the external public debt 84 million lei;
- Benefits, private loans interests, dividends, etc.:
    - benefits of the important banks with foreign capital 4 mil. lei
    - benefits of the foreign insurance companies in Vienna and Trieste 12 mil. lei
    - benefits for foreign electricity, forestry, oil companies 90 mil. lei
- Other amounts transferred and spent abroad, etc
    - revenues of important landowners, "absentees", from leased or sold lands (after the 1905 fiscal census) 4,8 mil lei
    - incomes of the large properties leased by important tenant farmers (60% of all properties were leased producing 76 million lei) 7,8 mil. lei
    - expenditures for scholarships and support abroad for approximately 1,500 university students and 600 high-school students 9,3 mil. lei
    - domestic holidays, holidays abroad, Paris, Nice, Monte Carlo, Switzerland etc. for over 8000 people 25 mil. lei
    - wages of foreign agricultural and industrial workers - Italians, Bulgarians, Serbs - over 20 thousand persons, and servants, male and female, approximately 40 thousand from Transylvania, employed by wealthy families 35 mil. lei

Balance II 1

Current account balance[1], according to the main resources, in dollars current and comparable currency ppc 2000 in annual series of the 1950 - 1979 period

Years	Balance of the current account million dollars		Losses of joint venture companies and others[4], million dollars		External financial liabilities million dollars		Balance of trade	
	Comparable currency dollars 2000[3]	Current currency	Comparable currency dollars 2000	Current currency	Comparable currency dollars 2000	Current currency	Comparable currency dollars 2000	Current currency
1	2	3	4	5	6	7	8	9
1950	-607.1	-68.5	-	-	419.0	37,5[1]	-188.1	-31
1951	-469.7	-47.5	-	-	413.0	37,5[1]	-56.7	-10
1952	-713.8	-97.5	-	-	381.4	37,5[1]	-332.4	-60
1953	-603.8	-103	-	-	32.4	6[2]	-571.4	-97
1954	-130.2	-24	-	-	27.0	5[2]	-103.2	-19
1955	-269.7	-51	-	-	56.0	11[2]	-213.7	-40
1956	199.6	37	-	-	24.8	5[2]	224.4	42
1957	-413.1	-83	-	-	9.1	2[2]	-404.0	-81
1958	-72.7	-15	-	-	4.5	1	-68.2	-14
1959	97.4	20	-	-	- - -	- - -	97.4	20
1960	336.0	69	-	-	- - -	- - -	336.0	69
1961	-103.5	-22	-	-	- - -	- - -	-103.5	-22
1962	-569.8	-123	-	-	- - -	- - -	-569.8	-123
1963	-500.2	-107	-	-	- - -	- - -	-500.2	-107
1964	-759.7	-168	-	-	- - -	- - -	-759.7	-168
1965	107.8	25	-	-	- - -	- - -	107.8	25
1966	-116.4	-27	-	-	- - -	- - -	-116.4	-27
1967	-634.7	-151	-	-	- - -	- - -	-634.7	-151
1968	-560.9	-140	-	-	- - -	- - -	-560.9	-140
1969	-412.9	-108	-	-	- - -	- - -	-412.9	-108
1970	-395.3	-109	- - -	- - -	- - -	- - -	-395.3	-109
1971	-86.2	-25	- - -	- - -	79.3	23	-6.9	-2
1972	-213.0	-64	0.3	0.1	156.1	47	-56.5	-17
1973	669.3	232.5	1.6	0.5	- - -	- - -	670.9	233
1974	-1,812.6	-629.0	1.3	0.4	1,033.8	359	-777.5	-270
1975	-394.0	-136.8	2.5	0.8	388.8	135	-2.7	-1
1976	54.4	24.9	6.5	2.1	39.8	16	100.7	43
1977	-211.3	-364.3	49.8	21.3	70.2	304	-91.3	-39
1978	-3,805.3	-1,666.8	126.2	57.8	1,825.2	759	-1,853.9	-850
1979	-5,944.7	-2,940.9	193.8	96.9	3,342.9	1,653	-2,408.0	-1,191

Source: See sources and notes to Table Romania's external public debt.

Note:

[1] In 1938 dollar currency. Payments in the liability account of Romania, according to the 1947 postwar peace treaty provisions, 300 million US dollars spread out over eight years.

[2] After 1955 estimated shares of repurchasing assets from Sovrom companies of the Soviet Union.

[3] Amounts resulting from multiplying the current currency - US dollars, by the rate of depreciation of the dollar up to 2000.

[4] See detailed explanations in the study of Romania's external debt.

Balance III 1

Current account balance[1] current dollars and euros and in comparable currency, ppc dollars 2000, annual series of the 1980 - 2010 period

Years	Balance of the current acount		
	million dollars		per capita dollars 2000
	ppc 2000	Current currency	
1	2	3	4
1980	-4,477	-2,420	-202
1981	-1,409	-833	-63
1982	1,274	1,040	57
1983	1,777	1,160	79
1984	2,106	1,719	93
1985	1,701	1,381	75
1986	1,709	1,395	75
1987	2,503	2,043	109
1988	4,806	3,922	208
1989	3,081	2,514	263
1990	-3,963	-3,337	-171
1991	-1,265	-1,012	-55
1992	-1,916	-1,564	-84
1993	-1,439	-1,174	-63
1994	-472	-428	-21
1995	-2,174	-1,774	-96
1996	-3,150	-2,571	-139
1997	-2,619	-2,137	-116
1998	-3,637	-2,968	-162
1999	-1,800	-1,709	-80
2000	-1,670	-1,663	-74
		million euro[1]	
2001	-2,179	-2,488	-97
2002	-1,478	-1,623	-68
2003	-3,268	-3,060	-150
2004	-5,822	-5,099	-269
2005	-7,627	-6,888	-353
2006	-11,004	-10,156	-510
2007	-19,115	-16,614	-888
2008	-19,489	-16,157	-906
2009	-5,589	-4,913	-260
2010	-5,887	-5,493	-275

Source: See sources and notes to Table Romania's external public debt.

Note: [1] Since 2001 the balance of the current account is displayed in the main source - the Annual Activity Report of R.N.B.- in international currency, that is euro. It was converted according to the average of the exchange rate in dollar current currency, calculated afterwards in ppc dollars 2000 by means of the dollar depreciation coefficient.

GDP-Vn 1

Gross domestic product, net domestic product and national income - net national product, total and per capita, comparable currency in ppc dollars 2000, averages of the 1862-2010 period

Years	Gross domestic product million dollars	Consumption of fixed capital[1] million dollars	Net domestic product[2] (col. 2-3) million dollars	Balance of the current account[3] million dollars	National income[4] - Net national product (col. 4+5) million dollars	National income[4] - Net national product: Share in the gross domestic product (col.6/2) %	Per capita: Goss domestic product dollars	Per capita: Net domestic product dollars	Per capita: National income dollars
1	2	3	4	5	6	7	8	9	10
1862-1866	2,260.8	73.6	2,187.2	81.6	2,268.8	100.2	554.4	536.3	5563
1867-1871	2,539.8	81.8	2,458.0	137.1	2,595.1	102.1	598.2	578.9	611.1
1872-1876	2,925.8	98.8	2,827.0	1.9	2,828.9	96.7	667.4	644.8	645.3
1877-1881	3,491.8	114.2	3,377.6	-413.3	2,964.3	84.5	770.3	745.1	653.7
1882-1886	4,184.6	126.2	4,058.4	-478.0	3,580.4	85.1	859.5	833.6	735.1
1887-1890	4,775.3	147.8	4,627.5	-441.8	4,185.7	87.6	915.5	887.2	802.3
1891-1895	5,581.8	183.4	5,398.4	-597.6	4,800.8	86.0	1,015.0	981.6	872.9
1896-1900	5,599.2	214.6	5,384.6	-647.9	4,736.7	83.7	954.1	917.6	807.1
1901-1905	6,297.8	255.6	6,042.2	-216.2	5,826.0	92.1	1,000.6	960.0	925.8
1906-1910	7,411.4	318.8	7,092.6	-164.0	6,928.6	93.2	1,093.8	1,046.7	1,022.2
1911-1914	8,828.8	462.8	8,366.0	-520.6	7,845.4	88.7	1,202.1	1,139.2	1,069.6
....									
1920-1924	14,350.6	701.0	13,649.6	-844.1	12,805.5	88.8	896.3	852.6	799.2
1925-1929	18,365.0	1,042.4	17,322.6	-893.2	16,429.4	89.5	1,069.8	1,009.1	957.3
1930-1934	19,424.0	1,185.4	18,238.6	-581.7	17,656.9	90.9	1,055.8	991.4	959.6
1935-1939	22,338.4	1,568.0	20,770.4	75.7	20,846.1	93.4	1,143.8	1,063.5	1,067.7
1940-1944	14,872.6	1,237.6	13,635.0	-1,033.1	12,601.9	84.7	1,097.3	1,006.0	930.3
1945-1947[3]	10,620.7	1,131.0	9,489.7	-613.9	8,875.8	83.4	672.3	600.7	561.8
....									
1950-1954	28,375.4	3,243.6	25,131.8	-504.9	24,626.9	86.7	1,699.9	1,505.6	1,475.1
1955-1959	39,869.2	4,676.6	35,192.6	-91.7	35,100.9	88.0	2,240.6	1,978.0	1,972.8
1960-1964	55,652.8	6,893.0	48,759.8	-319.4	48,440.4	87.1	2,976.9	2,608.3	2,591.3
1965-1969	84,700.4	10,697.0	74,003.4	-323.4	73,680.0	87.0	4,350.1	3,800.8	3,784.3
1970-1974	129,653.4	13,318.6	116,334.8	-367.5	115,967.3	89.4	6,270.1	5,625.5	5,607.9
1975-1979	179,123.2	16,415.2	162,708.0	-2,060.2	160,647.8	89.7	8,263.7	7,506.0	7,412.1
1980-1984	211,035.6	26,028.2	185,007.4	-145.8	184,861.6	87.6	9,400.8	8,241.9	8,234.7
1985-1989	234,304.6	34,702.4	199,602.2	2,760.0	202,362.2	86.3	10,215.5	8,703.6	8,823.7
1990-1994	182,433.2	20,034.0	162,399.2	-1,811.0	160,588.2	88.1	7,950.4	7,077.3	6,998.6
1995-2000	183,594.7	20,161.7	163,433.0	-2,508.3	160,924,7	87.7	8,144.8	7,250.4	7,139.1
2001-2005	211,147.2	23,050.8	188,096.4	-4,074.8	184,021.6	87,2	9,684.6	8,627.3	8,439.8
2006-2010	273,437.6	29,366.8	244,070.8	-12,216.8	231,854.0	84,8	12,715.8	11,350.0	10,782.3

Source: Calculated based on Table GDP-Vn 2

Note: [1] 1-4 see table GDP - Vn 2

[2] In column 8, 9, 10 amounts rounded up to units.

GDP-Vn 2

Gross domestic product, net domestic product and national income - net national product, total and per capita, comparable currency in ppc dollars 2000, annual series of the 1862-2010 period

Years	Gross domestic product million dollars	Consumption of fixed capital[1] million dollars	Net domestic product[2] (col. 2-3) million dollars	Balance of the current account[3] million dollars	National income[4] - Net national product (col. 4+5) million dollars	National income[4] - Net national product: Share in the gross domestic product (col.6/2) %	Per capita: Gross domestic product dollars	Per capita: Net domestic product dollars	Per capita: National income dollars
1	2	3	4	5	6	7	8	9	10
1862	2,264	70	2,194	102,6	2,296.6	101,4	563	546	571
1863	2,479	73	2,406	45,0	2,451.0	98,9	613	595	606
1864	2,577	74	2,503	147,3	2,650.3	102,8	630	612	648
1865	1,997	74	1,923	56,5	1,979.5	99,1	483	465	479
1866	1,987	77	1,910	56,5	1,966.5	99,0	483	464	478
1867	2,431	78	2,353	30,1	2,383.1	98,0	585	567	574
1868	2,652	82	2,570	250,2	2,820.2	106,3	632	612	672
1869	2,429	80	2,349	110,5	2,459.5	101,3	572	553	579
1870	2,539	84	2,455	74,5	2,529.5	99,6	591	572	589
1871	2,648	85	2,563	220,0	2,783.0	105,1	611	592	642
1872	2,653	90	2,563	93,9	2,656.9	100,1	610	589	611
1873	2,823	95	2,728	71,7	2,799.7	99,2	648	626	643
1874	2,784	101	2,683	-127,2	2,555.8	91,8	638	615	586
1875	3,237	106	3,131	-56,8	3,074.2	95,0	736	712	699
1876	3,132	102	3,030	28,1	3,058.1	97,6	704	682	688
1877	3,227	108	3,119	-888,1	2,230.9	69,1	720	696	498
1878	3,331	108	3,223	-527,1	2,695.9	80,9	743	718	601
1879	3,413	116	3,297	165,3	3,462.3	101,4	753	728	764
1880	4,264	119	4,145	-350,7	3,794.3	89,0	938	912	835
1881	3,224	120	3,104	-465,7	2,638.3	81,8	697	671	571
1882	4,297	121	4,176	-308,4	3,867.6	90,0	917	891	825
1883	4,029	128	3,901	-717,7	3,183.3	79,0	844	817	667
1884	3,494	123	3,371	-626,5	2,744.5	78,5	719	693	564
1885	4,281	126	4,155	-323,7	3,831.3	89,5	863	838	772
1886	4,822	133	4,689	-413,8	4,275.2	88,7	956	929	847
1887	4,543	138	4,405	-422,4	3,982.6	87,7	889	862	780
1888	4,778	142	4,636	-468,5	4,167.5	87,2	923	895	805
1889	4,854	153	4,701	-621,7	4,079.3	84,0	924	894	776
1890	4,926	158	4,768	-254,7	4,513.3	91,6	926	897	849
1891	5,118	174	4,944	-520,1	4,423.9	86,4	949	917	820
1892	5,564	179	5,385	-651,1	4,733.9	85,1	1,026	993	873
1893	5,434	181	5,253	-539,9	4,713.1	86,7	991	958	859
1894	5,872	188	5,684	-785,2	4,898.8	83,4	1,059	1,025	883
1895	5,921	195	5,726	-491,7	5,234.3	88,4	1,051	1,016	929
1896	6,129	204	5,925	-414,8	5,510.2	89,9	1,073	1,038	965
1897	5,161	199	4,962	-832,7	4,129.3	80,0	891	,856	713
1898	6,223	214	6,009	-755,8	5,253.2	84,4	1,061	1,025	896
1899	4,397	211	4,186	-1,037,1	3,148.9	71,6	738	703	529
1900	6,086	245	5,841	-199,3	5,641.7	92,7	1,007	966	933

Years	Gross domestic product	Consumption of fixed capital[1]	Net domestic product[2] (col. 2-3)	Balance of the current account[3]	National income[4] - Net national product (col. 4+5)		Per capita		
						Share in the gross domestic product (col.6/2)	Gross domestic product	Net domestic product	National income
	million dollars	million dollars	million dollars	million dollars	million dollars	%	dollars	dollars	dollars
1	2	3	4	5	6	7	8	9	10
1901	6,412	243	6,169	-204,4	5,964,6	93,0	1,047	1,007	974
1902	6,293	252	6,041	-104,7	5,936,3	94,3	1,016	975	959
1903	6,522	265	6,257	-126,1	6,130,9	94,0	1,037	995	975
1904	5,101	251	4,850	-603,6	4,246,4	83,2	798	759	664
1905	7,161	267	6,894	-41,9	6,852,1	95,7	1,105	1,064	1,058
1906	7,818	290	7,528	-221,8	7,306,2	93,5	1,187	1,143	1,110
1907	6,402	297	6,105	-47,5	6,057,5	94,6	958	914	906
1908	6,971	317	6,654	-594,6	6,059,4	86,9	1,030	983	895
1909	6,935	333	6,602	-156,3	6,445,7	92,9	1,012	963	940
1910	8,931	357	8,574	199,9	8,773,9	98,2	1,282	1,231	1,260
1911	8,824	426	8,398	-135,1	8,262,9	93,6	1,245	1,185	1,166
1912	9,088	456	8,632	-593,6	8,038,4	88,5	1,256	1,193	1,111
1913	9,211	486	8,725	-411,7	8,313,3	90,3	1,253	1,187	1,131
1914	8,192	483	7,709	-941,9	6,767,1	82,6	1,054	992	871
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1920	11,826	558	11,268	-1,469,3	9,798,7	82,9	761	725	631
1921	12,960	635	12,325	-1,288,0	11,037,0	85,2	824	784	702
1922	14,638	707	13,931	-538,2	13,392,8	91,5	917	872	839
1923	16,039	764	15,275	-303,6	14,971,4	93,3	990	942	924
1924	16,290	841	15,449	-621,7	14,827,3	91,0	991	939	902
1925	16,660	893	15,767	-689,6	15,077,4	90,5	998	945	904
1926	18,472	979	17,,493	-542,7	16,950,3	91,8	1,091	1,033	1,001
1927	18,671	1,041	17,630	-845,5	16,784,5	89,9	1,089	1,028	979
1928	18,372	1,127	17,245	-1,163,3	16,081,7	87,5	1,056	992	925
1929	19,650	1,172	18,478	-1,225,0	17,253,0	87,8	1,114	1,048	978
1930	19,811	1,190	18,621	-1,143,5	17,477,5	88,2	1,107	1,041	977
1931	20,272	1,168	19,104	-361,1	18,742,9	92,5	1,116	1,052	1,032
1932	18,623	1,141	17,482	-707,6	16,774,4	90,1	1,011	949	910
1933	18,981	1,171	17,810	-285,9	17,524,1	92,3	1,018	955	939
1934	19,433	1,257	18,176	-410,3	17,765,7	91,4	1,027	961	939
1935	21,039	1,393	19,646	321,2	19,967,2	94,9	1,102	1,029	1046
1936	21,892	1,558	20,334	587,0	20,921,0	95,6	1,133	1,053	1,083
1937	22,910	1,647	21,263	861,1	22,124,1	96,6	1,173	1,088	1,133
1938	22,654	1,635	21,019	-796,7	20,222,3	89,3	1,147	1,064	1,024
1939	23,197	1,607	21,590	-594,3	20,995,7	90,5	1,164	1,083	1,053
1940	15,038	1,286	13,752	186,7	13,938,7	92,7	1,132	1,035	1,049
1941	15,533	1,246	14,287	-779,0	13,508,0	87,0	1,146	1,054	997
1942	14,512	1,292	13,220	-1,812,4	11,407,6	78,6	1,066	971	838
1943	16,631	1,342	15,289	-1,701,7	13,587,3	81,7	1,218	1,120	995
1944	12,649	1,022	11,627	-1,059,1	10,567,9	83,5	923	849	771
1945	9,863	1,065	8,798	-599,5	8,198,5	83,1	627	559	521
1946	9,647	1,133	8,514	-639,0	7,875,0	81,6	611	539	499
1947	12,352	1,195	11,157	-603,1	10,553,9	85,4	779	704	666
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Years	Gross domestic product	Consum- ption of fixed capital[1]	Net domestic product[2]	Balance of the current account[3]	National income[4] - Net national product		Per capita		
						Share in the gross domestic product	Gross domestic product		fixed capital[1]
	million dollars	million dollars	(col. 2-3) million dollars	million dollars	(col. 4+5) million dollars	(col.6/2) %		million dollars	million dollars
1	2	3	4	5	6	7	8	9	10
1950	21,897	2,536	19,361	-607.1	18,753.9	85.6	1,342	1,187	1,150
1951	28,059	3,111	24,948	-469.7	24,478.3	87.2	1,704	1,515	1,487
1952	27,979	3,338	24,641	-713.8	23,927.2	85.5	1,682	1,482	1,439
1953	31,523	3,535	27,988	-603.8	27,384.2	86.9	1,871	1,661	1,625
1954	32,419	3,698	28,721	-130.2	28,590.8	88.2	1,899	1,683	1,675
1955	40,099	4,019	36,080	-269.7	35,810.3	89.3	2,315	2,083	2,067
1956	34,884	4,530	30,354	199.6	30,553.6	87.6	1,995	1,736	1,747
1957	41,495	4,900	36,595	-413.1	36,181.9	87.2	2,327	2,053	2,029
1958	38,947	4,967	33,980	-72.7	33,907.3	87.1	2,157	1,882	1,878
1959	43,921	4,967	38,954	97.4	39,051.4	88.9	2,410	2,137	2,143
1960	48,168	5,719	42,449	336.0	42,785.0	88.8	2,617	2,307	2,325
1961	52,238	6,238	46,000	-103.5	45,896.5	87.9	2,813	2,478	2,472
1962	54,096	6,947	47,149	-569.8	46,579.2	86.1	2,896	2,524	2,493
1963	58,988	7,539	51,449	-500.2	50,948.8	86.4	3,135	2,735	2,708
1964	64,774	8,022	56,752	-759.7	55,992.3	86.4	3,422	2,998	2,958
1965	70,122	8,774	61,348	107.8	61,455.8	87.6	3,685	3,224	3,230
1966	78,007	9,600	68,407	-116.4	68,290.6	87.5	4,075	3,574	3,568
1967	85,570	10,972	74,598	-634.7	73,963.3	86.4	4,437	3,868	3,835
1968	91,988	11,713	80,275	-560.9	79,714.1	86.7	4,664	4,071	4,042
1969	97,815	12,426	85,389	-412.9	84,976.1	86.9	4,888	4,267	4,247
1970	107,592	12,726	94,866	-395.3	94,470.7	87.8	5,312	4,684	4,665
1971	115,570	11,915	103,655	-86.2	103,568.8	89.6	5,646	5,064	5,060
1972	130,348	13,092	117,256	-212.9	117,043.1	89.8	6,308	5,675	5,664
1973	146,695	14,066	132,629	669.3	133,298.3	90.9	7,043	6,368	6,400
1974	148,062	14,794	133,268	-1,812.6	131,455.4	88.8	7,041	6,337	6,251
1975	151,409	14,997	136,412	-394.0	1,360.8	89.8	7,127	6,421	6,402
1976	168,205	15,693	152,512	54.4	152,566.4	90.7	7,843	7,111	7,114
1977	178,309	16,477	161,832	-211.3	161,620.7	90.6	8,233	7,472	7,462
1978	194,780	17,105	177,675	-3,805.3	173,869.7	89.3	8,912	8,130	7,,956
1979	202,913	17,804	185,109	-5,944.7	179,164.3	88.3	9,203	8,396	8,126
1980	198,465	20,687	177,778	-4,477	17,3301	87.3	8,939	8,008	7,806
1981	198,606	24,586	174,020	-1,409	17,2611	86.9	8,885	7,785	7,722
1982	206,650	24,964	181,686	1,274	18,2960	88.5	9,194	8,083	8,140
1983	219,220	29,764	189,456	1,777	19,1233	87.2	9,720	8,400	8,479
1984	232,237	30,140	202,097	2,106	20,4203	87.9	10,265	8,933	9,026
1985	232,024	31,503	200,521	1,701	20,2222	87.2	10,211	8,824	8,899
1986	237,399	29,863	207,536	1,709	20,9245	88.1	10,402	9,093	9,168
1987	239,415	34,418	204,997	2,503	20,7500	86.7	10,437	8,936	9,045
1988	238,305	38,303	200,002	4,806	20,4808	85.9	10,337	8,675	8,884
1989	224,380	39,425	184,955	3,081	18,8036	83.8	9,692	7,989	8,122

Years	Gross domestic product	Consumption of the fixed capital[1]	Net domestic product[2]	Balance of the current account[3]	National income[4] - Net national product		Per capita		
						Share in the gross domestic	Gross domestic product		fixed capital[1]
	million dollars	million dollars	(col. 2-3) million dollars	million dollars	(col. 4+5) million dollars	(col.6/2) %	dollars	dollars	dollars
1	2	3	4	5	6	7	8	9	10
1990	211,813	2,3260	188,553	-3,963	184,590	87.1	9,127	8,125	7,954
1991	184,409	2,0251	164,158	-1,265	162,893	88.3	7,954	7,080	7,026
1992	168,096	1,8459	149,637	-1,916	147,721	87.9	7,376	6,566	6,482
1993	170,599	1,8735	151,864	-1,439	150,425	88.2	7,497	6,674	6,611
1994	177,249	1,9465	157,784	-472	157,312	88.8	7,798	6,941	6,921
1995	189,867	2,0851	169,016	-2,174	166,842	87.9	8,371	7,452	7,356
1996	197,436	2,1682	175,754	-3,150	172,604	87.4	8,733	7,774	7,635
1997	185,390	20,358	165,032	-2,619	162,413	87.6	8,223	7,320	7,204
1998	176,530	19,386	157,144	-3,637	153,507	87.0	7,845	6,983	6,822
1999	174,372	19,149	155,223	-1,800	153,423	88.0	7,764	6,912	6,832
2000	177,973	19,544	158,429	-1,670	156,759	88.1	7,933	7,062	6,987
2001	187,940	20,418	167,522	-2,179	165,343	88.0	8,387	7,476	7,379
2002	197,728	21,152	176,576	-1,478	175,098	88.6	9,120	8,144	8,076
2003	208,584	22,591	185,993	-3,268	182,725	87.6	9,598	8,558	8,408
2004	226,026	25,200	200,826	-5,822	195,004	86.3	10,429	9,266	8,998
2005	235,458	25,893	209,565	-7,627	201,938	85.8	10,889	9,692	9,339
2006	254,501	27,150	227,351	-11,004	216,347	85.0	11,791	10,533	10,023
2007	271,943	27,681	244,262	-19,115	225,147	82.8	12,627	11,342	10,454
2008	294,901	31,070	263,831	-19,489	244,342	82.9	13,714	12,269	11,363
2009	274,078	30,998	243,080	-5,589	237,491	86.7	12,766	11,322	11,062
2010	271,765	29,935	241,830	-5,887	235,943	86.8	12,681	11,284	11,009

Source: V. Axenciuc, Romania's Gross domestic Product, 1862-2000, 1st volume, table A 2, Bucharest 2012.

Note: [1]V. Axenciuc, quoted, table A21.

[2]Resulted from the deduction of fixed capital consumption from the GDP.

[3]See Tables Balance I2, II1, III1.

[4]Net domestic product + current account balance.

[5]The averages of the years the indicators per capita for columns 8, 9, 10 are rounded up to units.

PART TWO

GDP history, relevance and limitations

1. GDP and National Accounts

1.1 Brief history of National Accounts

The first attempts to estimate the National Accounts dates back to the seventeenth century, being attributed to William Petty (1676[61]) who, in the assessment of income and wealth at the personal and national levels included components such as land, ships, housing and other real estate, recommending that taxes to be paid in other ways than gold and silver, as a result of the increase in fiscal capacity of England, at that time, engaged in a war with the Netherlands.

A century later, Adam Smith (1776[62]) introduced the idea that the wealth of a nation is based not only on activities in agriculture and mining, but the domestic production should include also manufacturing activities, although without providing a concrete way of measuring wealth (or production). After another century of economic thought evolution, in the late of 1800s, the neoclassical approach of welfare, particularly through the work of Alfred Marshall (1890[63]), recorded significant progress towards a more rigorous conceptual and terminological framework of economics (defining supply and demand, marginal utility, costs of production, market value or price), including notions on production metrics.

In terms of measuring the aggregate economic activity, domestic production and the development of econometrics, in the 1930s, the work of Colin Clark (1932[64]) in the United Kingdom and Simon Kuznets (1934[65]) in the United States made a major contribution. The latter, at the request of US Congress, has developed a uniform set of National Accounts, considered the prototype of what was to be transformed afterwards into a system of standards at international level.

John Maynard Keynes (1936[66]) had a revolutionary approach to economic thought in the interwar period. In his macroeconomic vision, based on the primacy of demand and an active role of the state in moderating the economic cycles fluctuations (*boom and bust*),

[61] W. Petty, *Essays on Mankind and Political Arithmetic*, Project Gutenberg, transcribed from the Cassell & Co. edition by David Price, London, 2014 (First edition: 1676).
[62] A. Smith, An Inquiry into the Nature and causes of the Wealth of Nations, Edited by S.M. Soares, Metalibri edition, London, 2007 (First edition: 1776).
[63] A. Marshall, *Principles of Economics*, Palgrave Macmillan, London, 2011 (First edition:1890).
[64] C. Clark, *The National Income 1924-31*, Frank Cass & Co Ltd, london, 1965 (First edition: 1932).
[65] S. Kuznets, *National Income, 1929-1932*, 73rd US Congress, 2d session, Senate document no. 124, 1934.
[66] J.M. Keynes, *The General Theory of Employment, Interest and Money*, Palgrave Macmillan, London, 2007 (First edition: 1936).

including the US post-crisis recovery after the '30s *Great Depression* and the *World War II*, the use of new tools of National Accounts was of crucial importance.

Following the theoretical and methodological improvements in the National Accounts framework, including the Gross Domestic (or National) Product measurement, not without disputes and confrontations of views[67], subject on which we shall further return, the growing complexity of economic phenomena and the increasing difficulties encountered by the decision makers in the design, monitoring and implementing specific policies, exacerbated by crises or wars, have imposed the necessity of amending the macroeconomic tools, associated with more clear indicators and methodologies, both nationally and internationally agreed.

Shortly after the establishment of the United Nations in 1947, a committee of experts from the Statistics Commission, under the leadership of the British economist Richard Stone[68] (Nobel laureate for economics in 1984) delivered a report on National Accounts, containing principles and methodological recommendations of compiling them, in order to ensure also the international comparability of data. This report is considered as substantiating the first version of National Accounts (*System of National Accounts* - SNA) drafted in 1953 by the UN Statistical Commission, which included a set of 12 standard tables, designing a detailed classification of flows in the economy, appropriate practically for all countries in the world.

After slight revisions done in 1960 and 1964, the SNA was considerably extended in 1968, by adding input-output tables, methodological changes that allowed the estimates of indicators in constant prices being also operated. Subsequently, the SNA was reviewed in two stages, namely in 1993 by harmonizing National Accounts with other international standards, and in 2008, by updating and adapting, somewhat late in our opinion, to the changes in the global economic environment.

It is worth mentioning that these revisions were coordinated by a working group including experts from five institutions of international importance, namely the UN, IMF, World Bank, European Union (Eurostat) and OECD, that aimed at developing a reference

[67]In the context of multiple critics over time about the limitations of GDP as a measure of macroeconomic performance (between them, Nobel Prize winners for economics as Daniel Kahneman, Robert Solow, Joseph Stiglitz, Amartya Sen, Muhammad Yunus) it should be pointed out that Kuznets himself, in arguing the utility and interpretation of the indicator, in 1934, made some remarks about its shortcomings, warning that the welfare of a nation can scarcely result by measuring the national income. Moreover, in 1962, returning to the subject, Kuznets mentioned that one have to distinguish between the quantity and quality of growth, and between the short-term and long-term, and, in case of establishing a specific objective of economic growth, its type and purpose requiring to be clearly specified (European Parliament, *Alternative progress indicators to Gross Domestic Product as a Means Toward Sustainable Development*, EP, Policy Department, Brussels, 2007, p. 12).

[68]United Nations*, Measurement of National Income and the Construction of Social Accounts* (Appendix: *Definitions and Measurement of the National Income and Related Totals* by Richard Stone), Studies and Reports on Statistical Methods, No 7, UN, Geneva, 1947.

framework of definitions, standards, classifications and accounting rules, e.g. a unified statistical toolkit, able to ensure a consistent set of macroeconomic accounts in order to satisfy the information needs of policy making, analysis and research.

The SNA international standards, although just recommended and not mandatory, were adopted by most countries, with some exceptions, for reasons that are rather related to the economic development level and/or the type of political regime (many countries on the African continent, North Korea, Cuba).

At the European Union level, the SNA standards were adapted to the structures of Member Countries, under the European System of Accounts (ESA), established in 1995 (according to the SNA 1993) and revised in 2010 (according to the SNA 2008).

It must be emphasized that, in accordance with the European Parliament Regulation No. 549/2013, the reporting and publication of National Accounts data, based on the methodology envisaged by ESA 2010 standard, became mandatory for the Member States in September 2014.

The necessity of these last amendments was generated by the accelerating globalization, the fragmentation of the world production and the expansion of international value-added chains led, mainly, by the multinational companies, the increased cross-border movement of persons, goods, services, capital, information and the increasing interconnection of national economies, as well as the financial markets, dramatically highlighted by the global crisis triggered in 2008, with rapid spillover effects around the entire world.

It was found that these new phenomena induced by the globalization have affected the relevance of traditional indicators, including those based on the National Accounts, introducing distortions that have damaged the quality of data and their correspondence with real phenomena in the world economy, directly impacting on their usefulness in decision making and having to be corrected by revising the existing international standards and introducing new ones to compensate the lack of information and the emergence of so-called *data gaps*[69].

Furthermore, we will briefly focus on some major effects of the 2008-2009 global crisis upon the macroeconomic and financial concepts and approaches.

[69] United Nations, *The Impact of Globalization on National Accounts*, UN-ECE, Geneva, 2011.

1.2 Effects of the global crisis on macroeconomic and financial concepts

The shock of the global crisis of 2008-2009 highlighted, in a dramatic manner, the need for another conceptual and methodological approaches to macroeconomic and financial stability, fundamentally different, with effects on GDP relevance, including its interpretation paying maximum analytical attention of the related data.

One of the most important changes has been generated by the observation that a crisis triggered on a financial market niche (the *sub-prime mortgage market* in the US), appreciated as having an insignificant dimension compared to the overall American financial system, could be transmitted extremely fast, by contagion effects, in an interconnected global context, on a large number of markets around the world, which imposed, among others, new connotations regarding the definition and assessment of the systemic risk[70].

In general, the systemic risk is considered as referring to the failure in complying with the obligations, financial or other, of one participant in the system, which has led to the failure of meeting the commitments of another participant, thus jeopardizing the stability of the entire system. From this definition it follows that the systemic risk is associated with all and, respectively, each system / subsystem related to the functioning of global markets mechanisms and can be validated at the local level too, in the sense of countries or group of countries with a major influence on the financial balances and the world economy. For instance, as concerns G-20, a number of 10 countries are listed as having systemically important financial sectors.

In terms of financial stability, the systemic risk is associated with the possibility of occurrence, suddenly and unpredictably, of an event that causes a loss of economic value or confidence in an important area of the financial system, with significant adverse effects on the real economy, under the circumstances of the absence of strong and immediate responses from policy makers or policy-led authorities.

If this definition may be categorized as having an abstract substance, the operationalization of evaluating and monitoring the systemic risk represents a challenge that, at least so far, the academic world and the regulatory national and / or international institutions, have failed to agree on the adequate solutions. In practice, a number of indicators, simple or aggregated, both in the category that have the ability to report phenomena having a crucial role in triggering previous crises (as the widening of current account deficits) and new

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[70] Gerlach S., *Defining and measuring systemic risk*, Economic and monetary affairs, European Parliament-DGIP, November, 2009.

indicators, with a more complex nature (as the interbank network connections), which implies immediate data access and the use of sophisticated methods and models to process them for assessing and monitoring the credit risk or the *default* contagion risk.

In order to manage, supervise and assess the systemic risk, on the occasion of G-20 meeting in April 2009, it was decided to establish a Financial Stability Board (the successor to the Financial Stability Forum), which was confirmed at the important summit at the level of heads of state held in September 2009 (Pittsburgh, USA). The Financial Stability Board (FSB) has its own Charter and organizational structure, with the essential task of promoting the reform of international financial regulations. In January 2013, this multinational board was set up as a non-profit organization based in Basel, under Swiss jurisdiction.

The structure of the FSB is extremely complex, comprising, at the level of G-20 member countries, the national authorities responsible for financial stability (ministries of finance / treasury, central banks, supervision agencies / committees), international organizations (EU, OECD), regulatory or financial institutions (IMF, World Bank, BIS), international financial markets committees / associations in specific sectors, involved in developing standards and best practices.

Despite certain progress (mainly, the implementation of Basel III standards in the banking system), as stated in the last report of the G-20 FSB[71], a number of inconsistencies in critical areas concerning, in particular, the implementation of resolution mechanisms, the reform of OTC (*over-the-counter*) derivatives, the prevention of new risks and vulnerabilities arising from changes in the structure and liquidity of markets, the financial institutions misconduct (especially at the level of top management) etc. is still maintaining.

Reducing the risks to financial stability, as clearly stated in the FSB report's conclusions[72], depends on the improvement of information quality, the transparency and due time they are made known, in such a way as to allow economic and financial actors to understand and better manage the risks and the sudden changes occurring in the markets.

In this regard, starting from the IMF / FSB report presented in November 2009[73], on the financial crisis and the scarcity of information, the G-20 have launched the Data Gap Initiative (DGI) and a multiannual action program, which includes 20 recommendations aimed to recover the situation regarding the lack of information in four major areas: risk

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[71] Financial Stability Board, *Financial Reforms – Achieving and Sustaining Resilience for All*, FSB Report to the G20, November 9, 2015, p. 4.

[72] *Idem*, p. 7.

[73] *The Financial Crisis and Information Gaps*, Report to the G-20 Finance Ministers and Central Bank Governors, Prepared by the IMF Staff and the FSB Secretariat, October 29, 2009.

assessment in the financial sector; cross-border financial links; vulnerability of the domestic economy to external shocks; improving communication of official statistical data.

At the international level, the DGI was coordinated by an inter-agency group chaired by the IMF and including BIS, ECB, Eurostat, OECD, UN and World Bank.

On the occasion of the Global Conference on the DGI progress held in June 2014, the representative of the IMF Statistics Department, He Qi[74], said that, virtually, in all four major areas of interest, the conceptual and statistical framework needs to be developed further and, more important, despite the existence of this framework, efforts should be focused on collecting data on financial soundness indicators, CDS (*Credit Default Swap*), housing market prices etc., and on improving the communication of official statistical data regarding key global indicators (PGI - Principal Global Indicators)[75].

Clearly, one of the most important indicators which is seeking to eliminate the lack of information is the GDP, including its detailed breakdown on the demand side (expenditures method).

The inter-agency group is trying to contribute to the improvement and implementation of common standards also regarding the methodology based on purchasing power parity (PPP), the harmonization and dissemination of real estate market price indices etc.[76].

Since a detailed analysis of methodological changes suffered by SNA over time exceeds the objectives of this paper, we focus further on the main changes of the ESA 2010 standard compared to 1995 edition, and their effects on the GDP revision at the European Union level.

1.3 Methodological changes of ESA 2010 and the impact on GDP revision

The new ESA 2010 standard imposed a series of conceptual adjustments in the framework of the National Accounts, in its scope and coverage, also by the expansion of quarterly and regional accounts, and the introduction of new chapters concerning the satellite accounts, of the public administration and the rest of the world.

Summarizing, the main changes relate to:

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[74] He Qi, *G-20 Data Gaps Initiative*, IMF/FSB *Global Conference on the G-20 DGI-Progress in Five Years*, June 25-26, Basel, Switzerland, 2014, p. 5.

[75] A database managed by the IMF, designed to provide comparable data to the G-20 member countries, of high quality and easily accessible, including over 100 indicators covering the real sector, external sector, financial sector, public finances, public debt, inflation, exchange rate etc.

[76] International Monetary Fund, *Recent Developments and Current Initiatives*, Statistics Department, IMF, Washington, 2012, pp. 24-25.

- reclassifying Research and Development (R&D) expenditures from intermediate consumption to gross fixed capital formation, materialized in intellectual property assets, to be recorded in a satellite account;

- reclassifying expenditures for weapons systems from intermediate consumption to gross fixed capital formation;

- changing the methodology for the financial services assessment by introducing the analytical concept of capital services, registered separately, as a component of the value added;

- redefining the financial assets, by including a wider coverage of the financial derivative contracts;

- introducing new rules for pension funds registration, by including the entitlements and associated flows for all public and private pension schemes;

- changing the registration of purchases and resale of goods subject to processing in the same country or abroad, according to the "change in economic ownership" principle;

- redefining the regime of the financial companies, mainly on "special purpose entities" type, the public-private partnership, the dividends paid by the public corporations, the credit guarantees;

- introducing new accounting rules for the registration into the GDP of illegal activities (prostitution, production and smuggling of drugs, alcohol, tobacco).

Nominal GDP (thousand billion euro) **ESA 2010 compared to ESA 95, in 2000-2013**

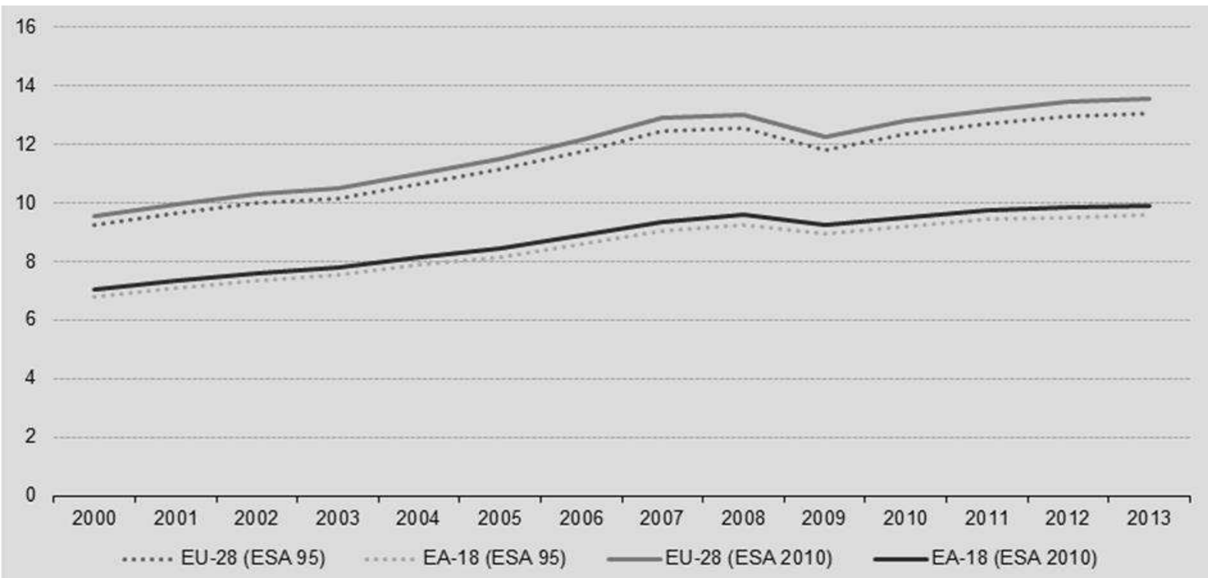

Figure 1

Source: Eurostat Statistics Explained,*Annual national Accounts – how ESA 2010 has changed the main GDP aggregates*, 2015.

In accordance with the preliminary Eurostat estimates published in 2014[77], the implementation of ESA 2010 and the review of the figures for the period 1997 to 2013 resulted in a significantly higher nominal GDP, by 3.5% on average annually over the whole EU-28 for the entire period, compared with the estimations of the ESA '95 methodology, mentioning also a limited impact on the GDP growth rates.

As shown in Figure 1, in terms of nominal GDP, the differences between the two methodologies, in absolute terms, ranged from 250 billion euro to almost 400 billion euro annually at the EU-28 level, throughout the period 1997-2013[78].

These significant differences following the revision of GDP figures according to ESA 2010 were caused both by methodological changes and statistical improvements, the latter due to the use of new data sources, mainly as concerns the estimation of illegal activities.

In 2010, in some countries, where the differences in the GDP levels estimated under ESA 2010 compared to ESA '95, were significant, comparing also with the average of +2.3% registered at the level of EU-28 (Sweden: +5.5%; Finland: +4.7%), they are explained, almost exclusively, through the impact of methodological changes, mainly due to the reclassification of expenses for Research and Development (see Table 1).

Table 1

The impact of methodological changes and statistical improvements in several EU countries in 2010

\- % of GDP -

Country	**Difference** (GDP increase)	**Methodological changes ESA 2010**		**Statistical improvements**
	Total	Total	out of which: R&D	
EU-28	3.7	2.3	1.9	1.4
Bulgaria	2.0	0.4	0.3	1.6
Czech Republic	4.3	3.1	1.2	1.2
Cyprus	9.5	1.1	0.2	8.4
Finland	4.7	4.2	4.0	0.5
Netherlands	7.6	1.7	1.7	5.9
Poland	1.5	1.2	0.5	0.2
ROMANIA	1.9	0.6	0.5	1.3
Sweden	5.5	4.4	4.0	1.1

Source: Eurostat, *First estimation of European aggregates based on ESA 2010*, Eurostat News Release no 157/2014 - 17 October, 2014, p. 4.

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[77] Eurostat, *First estimation of European aggregates based on ESA 2010*, Eurostat News Release no 157/2014, 17 October, 2014.

[78] For the US, the data revision according to SNA 2008 led to a higher nominal GDP by nearly 4%, while in the case of China it was estimated that the impact of methodological changes on GDP stood at 16% (Independent Evaluation Office, *Behind the scenes with data at the IMF: an IEO evaluation*, IEO-IMF, Washington, February 25, 2016, p. 8).

In other countries (the Netherlands: +7.6%; Cyprus: +9.5%) the differences are due mostly to the impact of statistical improvements. In this context, it is worth mentioning that, the revision by Eurostat of Romania's GDP, showed a difference of +1.9% in 2010, of which +0.6% on the account of methodological changes, and +1.3% due to statistical improvements.

Beside the illegal activities, that continue to encounter major difficulties for an adequate registration, a study of Bruegel[79] pointed out that a significant influence on GDP estimations has the legal hidden economy (*legal shadow economy*) defined as referring to the production and services carried on so-called "black" (or "gray") market.

To these, the tax evasion, which has reached alarming levels, exacerbated by tax optimization practices and intra-group pricing transfer, mainly by the multinationals or their subsidiaries is added. It is estimated that, in 2013, the informal economy accounted for over 20% of GDP in countries like Italy, Greece, Cyprus, Lithuania, Latvia and Slovenia[80]. For Romania, the non-observed (hidden) economy was estimated at 28.4% of GDP by a report of the European Commission published in 2013, which was double compared to the EU-27 average (e.g. 14.3%), noting that half of it was caused by the undeclared work, especially due to the high tax burden on labor[81]. In some emergent countries (India, Philippines) the share of the hidden economy is significantly higher, ranging between 40% and 50% of GDP and, in other countries, usually less developed (many African countries and some from Latin America) even exceeding 50% of GDP[82]. The Implementation Guide of SNA 2008 prepared by the UN experts, in the chapter on time series, revisions and statistical discrepancies, was drawing attention on the fact that, in most cases, the published data cover a historical period of 10-15 years, while the macroeconomic quantitative modeling principles and methods require the use of longer time series, up to 50 years[83].

Under the circumstances of increased uncertainty and lack of reliable data, based on the evolution of real phenomena, the quality of macroeconomic forecasts, as essential tools in the management of policies and the orientation of international financial markets, has deteriorated, both globally and at the regional and country levels, the time intervals for their revision from the responsible institutions becoming smaller and the corrections, in most cases, bigger.

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[79]S. Merler, P. Huttl, *Wellcome to the dark side: GDP Revision and the non-observed economy*, Bruegel, February 26, 2015.

[80]OECD, *Base Erosion and Profit Shifting Project*, Final Reports, OECD Better Policies for Better Lives, Paris, 2015.

[81]European Commission, *Tax reforms in EU Member States 2013 Report*, EC Brussels, 2013, p. 78.

[82]*Countries with the biggest shadow economy*, Bloomberg, USA, 2016.

[83]United Nations, *System of National Accounts 2008*, UN, New York, 2009, p. 395

2. GDP relevance and limitations

2.1 Major methodological inconsistencies in estimating GDP

The conceptual consistency of the three methods for estimating GDP (output, expenditures and incomes approaches) does not always correspond to the effective means of compiling data, due to the diversity of sources, especially for exports and imports of services. Any error in each of these methods is leading to differences, which, necessarily, have to be published as "statistical discrepancies", but, in practice, it does not often happen[84].

The average user will encounter many difficulties to realize, unless the explicit size of statistical discrepancies is made known, if they do not exist, or merely they have not been published, so his degree of attention to this issue needs to be the highest, in order to ascertain a benchmark on the data accuracy.

Beside the statistical distortions occurring mainly because of measurement errors of exports and imports of services, the accuracy of GDP data is affected also by the substitution of the lack of direct sources for data with estimates, such as the case of some expenditures of the central and / or local government, the fixed capital depreciation, the interest paid / received, some emergent activities (Internet, purchase of software, mobile phone services etc.) in rapid expansion.

Another major methodological inconsistency of GDP estimates is generated by the consumption of goods and services in-kind, associated, mainly, with the household sector and the subsistence agriculture.

Although they should be included in National Accounts, the transfer of such goods and services among resident households escapes, usually, to statistics, which have more significant effects in countries where the non-fiscalized economy has a more important size.

Assessing the households' self-consumption in rural areas, which, in many countries, has a significant dimension, shows a high degree of approximation, both due to the difficulties of estimating the contribution of product inventories from the previous period, taking into account the seasonality of production, and the use of relative prices associated to the principle of nearest local market, including the related transportation costs.

In Romania, the share of self-consumption in GDP is relatively high, although registering a downward trend in recent years, namely from 13% in 2004 to 6.4% in 2011 and

[84] In the case of USA, which published the statistical discrepancies, these are significant, in the years 2014 and 2015 being around 200 billion dollars and representing more than 1% of GDP (Bureau of Economic Analysis, *Gross Domestic Product: Forth Quarter and Annual 2015*, BEA News release, US DC, March 25, Washington, 2016, p. 14). In the case of Romania, except for seasonal GDP adjustments, the National Institute for Statistics does not specify the statistical discrepancies.

about 5% in 2014, with the mention of the difference ranging from simple to triple between this ratio in rural and urban areas respectively[85].

In the category of goods and services produced in households for their own consumption the construction / expansion of dwellings, shelters for livestock, warehouses for grains, domestic services for own consumption etc. are also included, making virtually impossible the exhaustive and accurate measurement of the entire self-consumption.

Another methodological problem is generated by the inclusion in the households final consumption of the imputed rent for owner-occupied houses or the market rent collected / paid for rented houses, especially if the proportion of dwellings for rental is high and the real estate market has a high degree of stratification / segmentation (e.g. urban / rural, major regional disparities in the standard of living[86]), as is the case of Romania.

The GDP limitations arise also from the fact that non-market activities escape National Accounts records. Despite many attempts, there is no consensus on the valuation of homework (noted also as *unpaid* or *non-market housework*, sometimes as *household production*) e.g. some domestic activities, especially in the category of services, such as meal preparation, house cleaning, washing, children care and elderly care etc.

Some studies have revealed a monetary value of domestic work estimated at percentages between 30% and 50% of GDP during 1970-1990 in countries like USA, Germany, France and Canada[87].

More recent calculations have pointed out that, in the US, the value of domestic work accounted for 26% of GDP in 2010, compared to 39% in 1965[88].

In most of the EU Member States, the household production was estimated at figures between 20% and 40% of GDP[89].

Even if the numbers have a certain degree of approximation, the downward trend in the share of GDP of the housework value is consistent with the increase in the development level, reflecting the more and more domestic activities transition to the market services.

Although the idea dates back to the 1970s[90], only recently, at the UN level, a development in the context of national accounts has been agreed, the extended (satellite)

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[85] National Commission of Prognosis, *The projection of main macroeconomic indicators*, CNP, Bucharest, September, 2010 and November 2012, 2015.
[86] United Nations, *idem*, p. 466.
[87] A. Chadeau, *What is households non-market production worth?*, OECD Economic Studies, No 18, Spring, 1992, pp. 85-103
[88] B. Bridgman, A. Dugan, M. Lal, M. Osborne, S. Villones, *Accounting for Household Production in the National Accounts, 1965–2010,* BEA Survey of Current Business, May 2012, pp. 23-36.
[89] V. Miranda, *Cooking, Caring and Volunteering: unpaid work around the world*, OECD Social, Employment and Migration Working Papers, 3 March, 2011, p. 30.

accounts for highlighting the accounting of non-market activities, especially of social and environmental nature, that can be important growth factors, including capital and household services and unpaid household work.

At the EU level, despite some progress, the record of these activities in satellite accounts is still in the phase of methodological debates, the reconciliation of data and their proper integration remaining a difficult challenge[91].

These methodological deficiencies, whose persistence, through a multiplier effect, lead to considerable margins of error in measuring GDP at national level, are multiplied by international comparisons, which implies the figures conversion into a single currency (usually US dollars or euro, time series in constant prices) by using increasingly volatile exchange rates and / or by using specific methodologies in virtual currencies (PPP, PCS) that take into account the purchasing power parity, in order to ensure the comparability of data.

A more detailed discussion on the matter related to the data comparability shall be made further, where the evolution of the GDP in Romania during the last 150 years, including various international comparisons will be analyzed.

2.2 Criticisms of GDP

The criticisms of GDP are manifold, some of their roots being fundamentally different, but having an interfering area, which, in the attempt - often apparent - of harmonizing them, seems to have drifted on the land of speculations, farther from the frontiers of real phenomena knowledge that face the contemporary world and their dynamics understanding, making almost invisible and, therefore inoperative, the maneuver room in correcting the adverse effects and, respectively, in their orientation towards the desirable objectives of development at the national, regional, continental and global levels.

One of these roots has, as origin, the hegemony of the economic thought after the Second World War, e.g. the approach based on growth (*growth-centric thinking*), prevailing until the '90s, which had, among the adverse implications, the politicization of GDP, by diverting its meaning and function, essentially economic, and assigning it an untouchable nature, which stemmed from the fear that, granting a greater consideration, otherwise rightful, to other factors (the environment for example) would have meant taking decisions with

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[90]W.D. Nordhaus, J. Tobin, *Is Growth Obsolete?*, Cowles Foundation Discussion Paper No. 319, Yale University, 1971.
[91]Eurostat, *Review on National Accounts and Macroeconomic Indicators*, Eurostat 1/2014, p. 25.

potential political complications, requiring legislative changes, revising the economic, monetary and fiscal policies, that would suppose increases in government expenditures.

Thus, despite clearer evidences of its limits, the GDP has become a standard of success or failure, the singular measure indicating the course of the development progress, opposed to the gradually increase in the complexity of social and economic issues under the circumstances of more interconnected global markets, diverting and concentrating the attention of all stakeholders and decision makers in one direction only.

At the level of the public perception, it has been induced, by "omniscient" officials, maybe deliberately, the idea that GDP has the ability to compress the diversity and immensity of an economy, condensing into a single measure all phenomena of any kind, which occurs within an area, at national or global levels[92].

Moreover, it has witnessed the foundation and strengthening, *per se*, of a "reversed" logic of the development process, namely, in terms of market economy, rule of law and democracy, by converting GDP, from a means of increasing the population wellbeing, to an end in itself, acting sometimes as a campaigner agent during the general elections, rendering absolute the assessment of the measure in which this policy target is being reached with the real performances of the economy, implicitly, as result of the political power in office[93].

This new paradigm, in a political interpretation, most often wrong, generates the manipulation of voters on the basis of flawed promises (economic growth, employment creation, social assistance etc.) without a real foundation, and, into an economic approach, that could be merely validated, influences, in a decisive manner, the investors decisions and the financial flows on capital and / or goods markets and, to some extent, the national and international policies[94].

An example of an arbitrary manipulation of GDP, its conversion to political ends and distorting the realities, occurred just in Romania during 2007-2008, preceding the economic

[92]J. Gertner, *The Rise and Fall of the G.D.P.*, The New York Time Magazine, May 13, 2010.

[93]The intentional manipulation is often a case of Goodhart's Law, the popular formulation of which is "When a measure becomes a target, it ceases to be a good measure". Goodhart's Law (named after an economist who was a member of the Bank of England's Monetary Policy Committee) refers to the vulnerability of a statistical indicator to manipulation once it is used to define a policy target (Independent Evaluation Office, *Behind the scenes with data at the IMF: an IEO evaluation*, IEO-IMF, Washington, February 25, 2016, p. 8).

[94]It is noteworthy in this respect, the confidentiality surrounding the GDP estimates before being officially communicated (usually quarterly) and the absolute ban for those holding such information to disclose them before exiting the embargo, especially in the cases of systemically important countries for the global economy. For example, in the US, a team of analysts from BEA (Bureau of Economic Analysis, under the Department of Commerce), after finalizing the figures on GDP in a completely isolated room (*lock-up room*), these are sent in a sealed envelope to the chief of economic advisers at the White House, who, after informing the US President, retransmits them to the BEA, the next day following to be communicated officially by a press conference (Ibid).

and social effects caused by the global crisis of 2008-2009, but which, more likely, have even exacerbated them. Examining the contribution of Romania's GDP growth factors on the demand side (Table 2) it was found an atypical macroeconomic picture during 2007-2009, marked by major structural changes in only three years, i.e. from a situation that seemed favorable (high GDP growth rates in 2007 and 2008) to one of extreme fragility (GDP decline by 7.1% in 2009).

Table 2

Contributions to GDP growth in Romania and other macroeconomic indicators in 2007, 2008 and 2009

- percent -

Years	2007	2008	2009
Gross Domestic Product	**6.2**	**7.3**	**-7.1**
Internal demand	**15.7**	**8.2**	**-14.4**
Final Consumption	8.2	7.5	-6.7
Gross Fixed Capital Formation	7.5	0.6	-7.7
External demand (net exports)	**-9.5**	**-0.8**	**7.3**
Other macroeconomic indicators (% of GDP)			
Balance of consolidated budget	-3.1	-4.8	-9.1
Current account balance	-13.4	-11.6	-4.2
Foreign Direct Investments (net)	5.7	6.7	3.0

Source: based on data from International Monetary Fund, National Commission for Prognosis, National Bank of Romania.

It is worth mentioning that, in 2009, Romania was saved from a financial collapse only by resorting to the external assistance from the IMF and the EU (amounting to 20 billion euro), procured under conditions of extreme emergency. Without going into details, just noting that this slippage, apparently from one extreme to the other, occurred amid a major imbalance between the domestic demand (+15.7%) and the external demand (net exports contribution of -9,5%) in 2007, witnessing an unsustainable increase in GDP in 2007 and 2008, based less on the gross capital formation (helped anyway by the massive inflows of Foreign Direct Investments up to 2008) but mainly on the increase in final household consumption, fueled by the wage rises and the consumer credit boom, under the circumstances of budget deficits widening and of the trade and current account deficits.

The fact that the increase in consumption and, therefore, in generating economic growth, was unsustainable is proved by its transformation from the factor with the biggest contribution to the GDP growth (+8.2% and +7.5% in 2007 and 2008 respectively) in the determinant of GDP decline in 2009 (a negative contribution of 6.7%), offset partially, in an atypical manner for the Romanian economy, by the hyper-positive contribution of net exports (+7.3%), due, in fact, to the fall in imports of goods (38.9 billion euro in 2009 compared to 57.2 billion euro in 2008) and reversing, in a shock-type manner, the ratio between the indexes used for calculating this contribution.

The Romanian authorities, placed in an election year in 2008, rendering absolute the figures showing high GDP growth rates, without an analysis of its factors, which would have identified specific vulnerabilities, have pushed the government expenditures to excessive levels, especially due to significant wages growth, leading in 2009 to a record budget deficit, accounting for 9.1% of GDP. In June 2010, according also to the conditionality regarding the decrease in the ratio of budgetary sector wages to GDP, stipulated in the IMF-EU agreement for financial assistance concluded in 2009, the public finances recovery imposed severe austerity measures, including the wage cutting by 25% in the budgetary sector, which have had severe economic and social effects, some of them being felt until today.

On the other hand, the authorities have not adopted the most appropriate monetary policy in order to mitigate the momentum of lending (the increase, in 2006, in the reserve requirements ratios to 40% on forex-denominated liabilities of credit institutions and to 20% on those in leu-denominated, in order to contain the credit expansion, has proved detrimental) and did not properly perceived the dangers of a real estate bubble occurring, as well as the severity of external financial imbalances impact, stressed by the global financial crisis triggered in September 2008, which affected, directly and indirectly, the banking system in Romania, dominated by foreign-capital banks, has not been anticipated[95].

Therefore, a radical change in the aggregate demand composition, happened in a relatively short period of time, as shown in the case of Romania, which reveals rather a vulnerable economy, especially if the GDP growth is achieved, mainly, by an excessive increase in consumption.

A sustainable development, even if looked upon through the angle of the evolution of a single aggregate indicator (GDP), requires a long-term balance between the domestic and the external demand contribution and also between the domestic demand components, in such a way that the gross fixed capital formation and, particularly, the investments - private and public - could spread their spillover effects vertically and horizontally, strengthening the overall economic growth in time and space.

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[95] Gh. Zaman, G. Georgescu, *Sovereign Risk and Debt Sustainability - Warning Levels for Romania*,in: „Non-Linear Modelling in Economics. Beyond Standard Economics”, Expert Publishing House, Bucharest, 2011.

Another vulnerability of the economy, unreported by the GDP indicator, even in an apparently stable configuration and balanced growth factors, stems from the fact that it does not reflects the degree of indebtedness nor the international investment position of a country, i.e. the extent to which growth was due to the increase in consumption and / or investments on the account of internal and / or external loans.

Or, if the rise in the indebtedness degree has not positive effects on raising the productive capacity of the economy and the added value, also by multiplier effects, the payments associated to the outstanding debt and / or the volatility of foreign capital may turn into real barriers to growth.

A significant example in this respect is still the case of Romania, where the public debt, expressed in euro, increased two times faster than GDP between 2000 and 2015, and being in the situation as the annual service (representing over 10% of GDP in the last years) has to be honored mainly by debt refinancing[96].

As regards the conceptual shortfalls, it should be mentioned that GDP, taken as such or *per capita*, does not reflect inequalities in income distribution and could hide disparities, both in time and space, which, as shown in some recent studies[97] have deepened in recent years, becoming of high concern at national, continental and world levels, that witnessed an increase in the degree of poverty, social inequalities and territorial discrepancies, despite the overall GDP growth.

The attempt to bring goods and services domestically produced in a given period to a common value denominator, using average or aggregate prices, is somewhat forced, as many reserves in interpretation due to inconsistencies of estimating the "real" growth by computing the GDP deflator, which is based on a variable basket of goods and services, corresponding only approximately to the complex patterns of consumption and investments and their changes.

The analysis of GDP, both statically and dynamically, is far from be able to provide a clear picture of the situation and the evolution of an economy, lacking in essential information, such as those concerning the fixed capital, the material, financial and human resources, as well as the availability, sustainability and effectiveness of their utilization.

In cases when GDP is taken as a reference, one must not neglect the effects of distortion on other important derived indicators to which it relates, among them, for example, the calculations of productivity, the public debt and the annual service, the different

[96]Idem.
[97] T. Piketty, *Capital in the Twenty-First Century*, Harvard University Press, 2014.

components of the budget spending (defense, education, health, R&D), international investment position etc.

Arguing that GDP still remains the best indicator for measuring the performance of a market economy, a European Commission document published in 2010[98], recognizes explicitly the limits of GDP, especially in terms of its relevance in assessing the progress and social welfare.

Moreover, it stated that some GDP components can be presumed to imply even a drop in citizens' wellbeing, such as, for example, increased defense spending, including the related investments, which absorb some of resources designed for infrastructure development, education and health.

In this regard, a classic example quoted in the literature, is the hypothetical case, in which a government decides to build a pyramid, the huge related costs concurring to the economic growth revealed by the GDP, but having no contribution to the increase in the population standard of living. On the contrary, it diverts funds that could have been allocated to activities associated with the wellbeing of citizens[99].

Other criticisms of GDP refers to the fact that it does not take into account the impact of some important factors reflecting the economic and social progress, such as the depletion of natural resources, the environmental damages, the urban concentration, the rural depopulation, the social inclusion and, taken as such, it provides no perspective on the medium- and long-term dynamics[100].

In a wider approach, in order to understand the sources of growth, as Nakamura showed[101], the economic theory and the measurement of economic phenomena should be developed simultaneously, in a correlated and interdependent manner.

Thus, the National Accounts analytical framework, originally built on the basis of industrial and production structures in the middle of the last century, in terms of consumer welfare too, should be developed with other indicators, able to reflect the sources of aggregate growth, and also the intangible assets, as part of individual wellbeing.

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[98]V.A. Areces, *Measurement of Progress – beyond GDP*, the 86-th Plenary Session, 5-6 October 2010, Committeeof Regions, European Union, ENVE-V-002, Brussels, 28 June, 2010.

[99]F. Shostack, *What is up with the GDP?*, Mises Institute Daily, August 23, 2001.

[100]V. Voineagu, C. Mindricelu, D. Ştefanescu, *Beyond GDP – through environmental accounts*, Romanian Statistical Journal, No. 6 / 2010, p. 4.

[101]L.I. Nakamura, *Intangible assets and national income accounting*, Review of Income and Wealth, Series 56, Special issue1, June, 2010, p. S153.

In this context, as mentioned by Nakamura, it should be understood that the GDP growth rate is totally inadequate for guiding the economic policies in this century, by far too complex to be guided by the dynamics of a single indicator[102].

The work towards the improvement of macroeconomic tools and the development of new statistical standards, amid the transition from an analytical debate based on accounts to the one having philosophical connotations, focused on two major directions, namely that of complementing GDP with a series of other relevant indicators, reflecting better the wellbeing of citizens, as well as of building a composite indicator that integrates various aspects of the quality of life.

3. Addressing GDP deficiencies

3.1 Stiglitz-Sen -Fitoussi Commission and its recommendations

Starting from the GDP limitations, in February 2008, at the initiative of French President, Nicolas Sarkozy, a Commission for the measurement of economic performance and social progress, led by Joseph Stigliz, Amartya Sen and Jean Paul Fitoussi was set up, in order to assess the validity of alternative tools and the requirements for the coverage of statistical information needs, including to ensure the data sources reliability and to identify other indicators relevant to the progress of society.

In the Commission' work, more than 20 experts from various international organizations (UN, OECD, INSEE), and prestigious universities in the world (Harvard, Princeton, Stanford, Massachusetts, Chicago, Columbia, London School of Economics and other) were co-opted. The activity for almost two years of the Stiglitz-Sen-Fitoussi Commission has ended up in a 300-page report, released in September 2009, in Paris[103].

This report presented, based on an extremely laborious analysis, the problems that the complex phenomena of contemporary society are facing with, ending with a series of recommendations that covers three major areas, as follows:

I. Developments / interpretations related to GDP

- Taking into account, in a larger extent, the income and consumption compared with production;

[102]V.A. Areces, *Idem*.
[103]J. Stiglitz, A. Sen, J.P. Fitoussi, *Report by the Commission on the Measurement of Economic Performance and Social Progress*, INSEE Publications, Paris, September, 2009.

- Closer association of income and consumption with wellbeing;
- More emphasis in terms of household's perspective;
- Greater attention paid to income distribution, consumption and wellbeing;
- Implementing of tools for revenue measurement to non-market activities.

II. Life quality

- Inclusion, in the surveys conducted by statistical institutions, of questions on evaluations, experiences and priorities of citizens;
- Improved measurement of the public health, education, social connections, environmental conditions and social insecurity;
- Assessing inequalities, in a comprehensive manner, by indicators that reflect the quality of life;
- Structuring the surveys so as to allow the assessment of the connections between the different components of the quality of life at the level of each person and using this information in the policy designing in various fields;
- Providing the necessary information for the aggregation of various dimensions of quality of life and for building different indexes.

III. Sustainable development and the environment

- Building a set of well-defined indicators, required by the assessment of development sustainability;
- Defining the components of this set to allow their interpretation in support of human wellbeing;
- Emphasizing the economic aspects of sustainability, even if a monetary index of sustainability would be appropriate in completing this set;
- Evaluating the environmental aspects of sustainability by monitoring separate indicators in their physical expression.

It can be concluded that the work of the Stiglitz-Sen-Fitoussi Commission, benefiting from a high scientific, analytical and credibility status, at the most prestigious level, demonstrated the need for a comprehensive approach of social wellbeing in relation to GDP, proving to be crucial in changing the manner of macroeconomic indicators interpretation.

The political reflection of this major change was that governments should pursue the social wellbeing and not, in an absolutist way, the GDP, which represented a turning point in the behavior of decision makers and the configuration of economic and social policies.

The European Union authorities, who have closely monitored the work of Stiglitz-Sen-Fitoussi Commission, have taken, at once, in discussion its recommendations, thereby promoting a series of debates with the aim of identifying the most appropriate formula to supplement GDP with other indicators. In 2009, the European Commission, along with the revision of the European System of Accounts (ESA 2010) previously mentioned, sent a communication to the European Council and the European Parliament[104] concerning the need to extend National Accounts and to supplement it with social and environmental indicators, advancing the idea of creating a dashboard for monitoring the sustainable development.

In November 2011, the European Statistical System Committee adopted a report launching a concrete action plan to implement the recommendations of Stiglitz-Sen-Fitoussi Commission, including the materialization of the idea of building a dashboard comprising a series of sustainable development indicators[105].

This dashboard was conceived as an instrument of action for the operationalization of the Europe 2020 strategy, including issues of financing (budgets, sectoral programs), containing a total of 10 headline indicators, covering five priority objectives in the fields of employment, R&D, energy and climate change, education, poverty and social exclusion, on which depends the wellbeing of EU citizens, in all Member States and their regions (according to NUTS 2 classification), ensuring also the compatibility of the statistical systems for each level[106].

A significant example of the multidimensional measure of quality of life is the population at risk of poverty or social exclusion, monitored as a key indicator under the Europe 2020 Strategy. The headline target set at the EU-28 level for this indicator is lifting at least 20 million people out of the risk of poverty or social exclusion by 2020 (compared to the 122 million people at risk in 2014, over 8 million people being in Romania).

At the level of OECD, a group of high level experts was set up in 2011 to continue the work of the Stiglitz-Sen-Fitoussi Commission[107], focusing on further research on specific topics such as inequalities and gaps assessing, a work program on measuring wellbeing and progress being launched, based on the evaluation of quality of life and material conditions, as well as their sustainability, initiative on which we will return further.

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[104]European Commission, *GDP and beyond – Measuring progress in a changing world*, EC COM (2009) 433 final, Brussels, 2009.

[105]Eurostat, *Well-being and Sustainable Development*, Final Report adopted by the European Statistical System Committee, Sponsorship Group on Measuring Progress, Eurostat, November, 2011.

[106]Eurostat, *Smarter, greener, more inclusive? Indicators to support the Europe 2020 Strategy*, Eurostat Statistical Books, European Union, Luxembourg, 2015.

[107]A. Gurria, Remarks delivered at the Conference *Two Years after the release of Stiglitz-Sen-Fitoussi Report*, Paris, 12 October, 2011.

Along with these initiatives at the level of various international organizations aimed at reconsidering the GDP relevance and complementing it with other indicators that reflect the quality of life or environment, some advanced countries have built their own system of indicators. A notable example in this regard is the United States. After a first attempt dating back from 2002, based on a law adopted in 2008 (*The Key National Indicator Act*), a National system of key indicators managed by a non-profit and non-partisan entity (composed of experts from the academic, scientific, statistical communities), independent of governance structures, was set up, with the associated website: *State of the USA*. This system, divided into 20 sub-indicators, has the mission to provide Americans, transparently, data and information to help them understand and assess the progress of the nation, under the most important aspects of it[108].

As regards all these attempts to address the GDP deficiencies, based on complementary indicators, notable in fact and having indisputably positive effects amid improving the overall quality of macroeconomic analysis, but also of government policies, it should be noted that there remain at least two major inaccuracies of conceptual and methodological nature. On the one hand, the mix of indicators, no matter how well-articulated, is lacking, to a greater or smaller extent, the real consistency imposed by the analytical and interpretive rightness of macroeconomic data. On the other hand, in the case of developing indicators systems at the national level, they may contradict the requirements of international comparability.

Some other attempts, more significant in our view, concerning the construction of synthetic indicators of social wellbeing or systems of alternative indicators that mitigate some of the shortcomings of GDP and of its complementary indicators are presented forwards.

3.2 Indicators and systems of alternative indicators of social wellbeing

Yet in the year 1970, Richard Easterlin has argued that in the US, as in other countries, despite the significant increase in the income per capita, the national average, in terms of wellbeing (happiness) and / or life satisfaction, seemed not to register a real growth on long-term, a phenomenon known as the “Easterlin paradox”[109].

Among the reasons of this paradox there are keeping unchanged the relative position of the individuals’ social status, due to the unbalanced distribution of benefits arising from the

[108]J. Gertner, *Idem.*
[109]R. A. Easterlin, *Does Economic Growth Improve the Human Lot?* in Paul A. David, Melvin W. Reder, eds., *Nations and Households in Economic Growth: Essays in Honor of Moses Abramovitz*, Academic Press Inc., New York, 1974.

increased revenues, as well as the total or partial cancellation of such gains by the losses stemming from the deterioration of other important social factors (increased insecurity, lack of confidence in authorities etc.).

The first attempts to substitute GDP are attributed to William Nordhaus and James Tobin, who have defined the measurement of *Net Economic Welfare* (NEW) by amending the gross national product with the “negative” spin-offs (defense spending, public order), environmental damages, adding instead the non-market activities (as leisure and underground economy)[110].

Since then, many studies on the consideration of various measures of welfare have been carried out, among others: the Index of Sustainable Economic Welfare (ISEW) developed by Herman Daly and John Cobb in 1980, which takes into account the links between the economy, society and the environment; the Genuine Progress Indicator (GPI) developed by Clifford Cobb, a version of ISEW that incorporates more aspects of unemployment, crime, leisure time, homework; the Genuine Savings (or Adjusted Net Savings) built by the World Bank, which measures the net investment in human capital, depreciation of fixed capital, depletion of natural resources, damages caused by pollution[111].

Regarding alternative indicators, an internationally notable attempt dates back to 1990. Under the aegis of UNDP (United Nations Development Program) the economists Mahbub ul Haq and Amartya Sen launched the Human Development Index (HDI), a composite tri-dimensional indicator meant to reflect the human prosperity, built as geometric mean of three normalized indices of life expectancy, education and income per capita (at PPP), published starting with 1990, in the annual UNDP human development reports.

Since 2010, including as a result of the criticism that has been subjected, primarily because of disputable indicators which were considered[112], the HDI has been adjusted by the aggregate level of inequality associated with each of its three dimensions (IHDI - Inequality-adjusted Human Development Index).

According to the report published in 2015, on top positions of the HDI global rankings, which includes 188 countries, were Norway, Australia and Switzerland (with HDI

[110]W.D. Nordhaus, J. Tobin, *Is Growth Obsolete?*, Cowles Foundation Discussion Paper No. 319, Yale University, 1971.

[111] European Parliament, *Alternative progress indicators to Gross Domestic Product (GDP) as a means towards sustainable development*, Policy Department, Economic and Scientific Policy, IP/A/ENVI/ST, October, 2007.

[112]The criticism focused on some HDI deficiencies both conceptual (the human development definition and its determinants) and methodological (the aggregation of various indicators, the perfect substitution of the three dimensions) such that, in time, the index suffered certain improvements, including by the calculation of IHDI (M. Kovacevic, *Review of HDI Critique and Potential Improvements*, Human Development Research Papers 2010/33, UNDP, New York, February, 2011, pp. 2-5).

between 0.950 and 0.930, respectively IHDI between 0.890 and 0.860) while Romania stood on a modest 52 position (HDI 0.793, respectively IHDI: 0.711) behind all other EU Member countries, except Bulgaria[113].

At the UN and World Bank levels, the concerns to assess various aspects of the economic and social conditions have resulted in the pursuit of well-being indicators, directly or by expanding various initiatives in this respect, carried on by governmental and / or non-governmental organizations.

For example, in 2002, the UN launched the MDG (Millennium Development Goals) platform, a global partnership for development having eight objectives, to which all Member States agreed, action plans with specific indicators in the areas of poverty, education, health, gender equality and the environment being elaborated.

In 2015, this platform has been updated and converted into 2030 Agenda for Sustainable Development (SDG - Sustainable Development Goals), which monitors 17 economic, social and environmental objectives, 169 targets and about 250 indicators[114].

Also, in 2011, the UN General Assembly adopted a resolution[115], in the explanatory statement arguing that GDP does not adequately reflect citizens' wellbeing, recommending to all Member States and international organizations to develop a new indicator reflecting the happiness of citizens, following the model introduced many decades ago by the Kingdom of Bhutan, build on 4 pillars, 9 areas and 72 indicators[116].

Thus, in 2012, the first annual report on the state of global happiness (World Happiness Report) has been published, under the coordination of a group of independent experts and the aegis of the UN. The report presents a global ranking based on the estimated level of happiness, including a number of more than 150 countries.

It is worth mentioning that the composite indicator of happiness is built based on six key variables (the GDP per capita at PPP, the social support in case of need, the healthy life, the freedom to make choices in life, the prevalence for generosity and the corruption perception at population and companies levels), one of the main data sources being the Gallup surveys (*Gallup World Poll*) focusing on the quality of life.

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[113]United Nations, *Human Development Report 2015*, UNDP, New York, 2015, p. 216.

[114]United Nations, *Transforming our World: the 2030 Agenda for Sustainable Development*, UN A/RES/70/1, New York, 2015.

[115]UN General Assembly, *Happiness: towards a holistic approach to development*, Resolution No. 65/309, 109th Plenary Meeting, July 19, 2011.

[116]The GNH (*Gross National Happiness*) has a philosophical inspiration, containing many elements of spiritual, ethic and cultural nature.

The World Happiness Report report on 2016[117], according to national scores of population happiness, as average of the period 2013-2015, witnessed on the global hierarchy top countries as Denmark, Switzerland and Iceland (scores between 7501 and 7526), Romania hovering barely the 71 position (score: 5528).

Almost surprising appears the poor positions of Japan (53rd), South Korea (58th), Hungary (91th), Portugal (94th), Greece (99th), explained mainly by the unequal distribution of wealth and the determinants of the life quality, despite much higher levels of such positions in terms of GDP per capita at PPP.

The result of an inter-collaborative research project initiated in 2010 by several global leaders in social sciences, gathered in the multinational foundation *Social Progress Imperative*, which has gained increasing recognition from the scientific and international institutions, materialized in the development of the Social Progress Index (SPI).

This composite indicator, constructed by the aggregation of 54 indicators, focuses on three dimensions of wellbeing e.g. the covering of basic human needs (food, water, shelter, safety), the access to wellbeing fundamentals (education, information, health, environment) and the opportunities for achieving individual goals and aspirations (rights, freedom of choice, freedom from discrimination and access to the most advanced information).

The Social Progress Index was redesigned in 2015 by Eurostat for the EU regions (NUTS2) focusing on the same three dimensions and including all twelve components. The composite index of regional EU-SPI is built on a set of 50 indicators (differing from the ones of the original SPI), according to the criterion of time series availability and the reliability of data sources.

The purpose of building this indicator is to ease the assessment of how the targets of policies and programs pursued by the European Commission for 2014-2020 are achieved, in particular those relating to social and territorial cohesion, helping regions to identify and take best practices from other regions with similar levels of development.

The publication of the final version of the EU-SPI for the 272 EU regions is foreseen by the end of 2016[118].

Following an analysis of the conceptual framework of wellbeing and the integrated approach to its multidimensional aspects, a group of Eurostat experts proposed in 2009 a methodology for calculating a composite indicator of wellbeing, called *satisfied life*

[117] J. Helliwell, R. Layard, J. Sachs (editors), *World Happiness Report 2016, Update* (Vol. I), UN Sustainable Development Solutions Network, New York, 2016, pp. 20-22.
[118] European Commission, *The EU Regional Social Progress Index: Methodological Note*, EC, DG Regio, Economic Analysis Unit, Brussels, 2015, p. 3.

expectancy, based on the concept of *happy life expectancy* introduced in 1996 by Ruut Veenhoven[119], professor emeritus at the Erasmus University of Rotterdam.

The Eurostat experts recommended also a set of 44 indicators of wellbeing, grouped into five components, concerning psychological needs, security-safety, individual and relational activities, skills and self-confidence[120].

As previously mentioned, at OECD level, more than a decade ago, researches on the measurement of wellbeing and progress have started, developing a methodological framework, updated in 2011 by the launch of the *Better Life Initiative*, that focuses more on aspects of life that are considered essential by citizens, as well as improving the information base, in a manner to enable a better understanding of welfare and its determinants trends, including for structuring the related policies. The framework of measurement the individual wellbeing is built on two dimensions (the quality of life, with eight areas, and the material conditions, with three areas) having associated more than 30 indicators, attempting also an evaluation of capital resources (natural, economic, human and social) needed to ensure the sustainability of improving the wellbeing of citizens.

The report for 2015 stated that, despite the progress of the OECD average compared with the crisis year 2009, in some countries (Spain, Portugal, Italy, Greece) several pressure factors on material conditions and quality of life have been felt, due to the decrease in real income of households, high unemployment and limited housing access. Also, an increase in the disparities, including at regional levels, has been revealed by many indicators (income distribution, access to services, employment opportunities, personal security, air pollution), which is affecting the resources for future improvements of wellbeing[121].

In conclusion, despite many attempts to address the deficiencies of GDP, by methodological updating, using complementary indicators or substituting it with the composite or alternative indexes, of which those that seemed more relevant were presented in this chapter, one can say that, at least so far, the academic research, the national, international and / or global institutions, the governmental or non-governmental organizations have failed to reach a consensus on the best way of measuring the wellbeing and social progress.

If this failure can be attributed, superficially, to economics as a social science, in whose object of study is found, according to most recognized definitions, the issue of

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[119] R. Veenhoven, *Happy Life-Expectancy. A Comprehensive Measure of Quality-of-Life in Nations*, Social Indicators Research, Vol. 39, 1996, Springer, pp. 1-58.

[120]Eurostat, *Feasibility Study for Well-Being Indicators. Task 4: Critical review*, European Commission, 2009, pp. 33-40.

[121]OECD, *How's Life? 2015: MeasuringWell-being*, Better Life Initiative, OECD Publishing, Paris, 2015, pp. 32-35.

wellbeing, welfare and prosperity of nations, on a broader level, it should be admitted that, in essence, the defining elements of wellbeing are outside the perimeter of this science, their metric being influenced, in a decisive manner, by the subjective perceptions of reality at the individual level, incompatible in relation to specific generalizations that substantiate the economic laws. Equally true is that the accelerating globalization has led to rising interconnections and interdependences of world phenomena, their increasingly greater complexity putting to a tough test the ability of policy makers to understand and manage them adequately, much less to identify the most appropriate ways to soften their negative externalities and to head in desirable directions the sustainable development of mankind, under conditions of extreme uncertainty[122].

Without diminishing the merit of these attempts and stressing the importance of continuing efforts to identify other ways of reflecting the citizens' wellbeing, further on we will return to the GDP, which remains the reference indicator, in one way or another, in the quasi-majority of studies devoted to assessing the performance of economies and the social progress, at the level of the most important institutions and organizations.

Thus, the GDP indicator, expressed *per capita*, converted to a single currency of reference and taking into account the purchasing power parity of various currencies, will be examined in the context of international comparisons, including Romania's evolution from this point of view, of its position in the global and / or European rankings, and the perspectives for reducing the development gaps against the advanced countries on the medium and long term.

4. International comparisons

4.1 Romania’s GDP during 1870-2000

The purpose of this section is to reveal the results of researches on the evolution of Romania's Gross Domestic Product over a historical period of over 130 years, not as long as duration but disrupted by radical changes in the system and even territorially.

The efforts to build long data series have required an extremely careful archival documentation, coupled with laborious calculations, based on an own methodological argumentation, in order to ensure a higher degree of data comparability[123].

[122]G. Georgescu, *The world trade data distortion and its contagion impact*, MPRA Paper No 69483, Munich, 2016.
[123]V. Axenciuc, *Produsul Intern Brut al României 1862-2000*, Editura Economică, Volumele I și II, București, 2012.

The GDP *per capita* data series for the period 1870-2000, based on the specified principles and methodological calculation criteria, was built sequentially, as follows:

- for the period 1870-1947, the data on GDP *per capita*, initially converted and expressed in comparable lei 1913, were equated in US gold dollars 1913, based on the metal parity ratio of 5.18 lei = 1 $; thereafter, the data series was recalculated by converting the US dollars 1913 to US dollars at 1990 purchasing power parity, multiplied by a factor of dollar depreciation during the period 1913-1990, of 11.07, calculated by Williamson[124];

- for the period 1950-1979, the National Income indicator has been transposed into Gross Domestic Product indicator according to SNA methodology, then converted in comparable prices and in US dollars at 1990 purchasing power parity, to ensure the comparison and continuity with both the previous series of GDP during 1862-1947, and the subsequent 1980-2000 (data series published by the National Institute of Statistics in current prices), making possible also the international comparisons.

For a period far back in time, comparing Romania's GDP with other countries encounters many difficulties. The calculation methods of some institutions or foreign authors, aiming at ensuring the GDP compatibility in international currencies were different; as a consequence, the resulted GDP, expressed in international dollars, was also different.

Table 3 presents some historical series of GDP *per capita* in Romania, calculated and published by various institutions, presented for comparison with our data series. The calculation methodology is specified in the data sources.

It was found that our figures for Romania’s GDP *per capita* in the first half of the last century, especially for the period 1926-1947, are relatively close to those provided by A. Maddison and the University of Warwick (the only data sources for this period) i.e. between $ 900 and $ 1,200 *per capita*.

In Romania's communist period (1950-1989), however, the figures begin to differentiate, the assessments made by A. Maddison for the end of this period (about $ 4,000 *per capita*) stood at half of the figures estimated by us.

Moreover, for the decade 1990-2000, the calculations both by A. Maddison and those of the University of Warwick, shows a decrease in GDP *per capita* of about $ 3,000 in the last year of the period, i.e. below the level recorded by Romania three decades ago, which is not confirmed from the analysis of GDP (at PPP) evolution, that will be presented below.

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[124]S. H. Williamson, *Six Ways to Compute the Relative Value of a U.S. Dollar Amount, 1774 to Present*, Measuring Worth, 2008.

Table 3

GDP *per capita* in Romania, from different statistical sources, in comparable dollars, during 1870-2000

Years	OECD Maddison international dollars 1990[1,2]	UN National Accounts dollars 2005[3]	Atlaseco Université de Sherbrook dollars PPP 2000[1,4]	University of Gröningen dollars PPP 1996[5]	World Table Pennsylvania University dollars 1996[1,6]	University of Warwick dollars PPP 1990[7]	V. Axenciuc GDP per capita dollars PPP 1990
1	2	3	4	5	6	7	8
1870	931					1143	481
1880	.....						763
1890	1246					1395	754
1900	1415						819
1913	1741					1705	1020
1926	1258						888
1927	1241						886
1928	1225						860
1929	1152					1102	907
1930	1219						893
1931	1229						908
1932	1144						823
1933	1184						828
1934	1182						836
1935	1196						897
1936	1194						922
1937	1130					1206	955
1938	1242						934
1950	1182					1176	1044
1951	1256						1337
1952	1333						1324
1953	1411						1495
1954	1496						1508
1955	1578						1822
1956	1623						1585
1957	1672						1848
1958	1724						1712
1959	1783						1892
1960	1844				1477		2072
1961	1951				1714		2234
1962	2007				1858		2288
1963	2137				2070		2501
1964	2258				2131		2729
1965	2386				2323		2939
1966	2643				2457		3209
1967	2743				2740		3458
1968	2739				2888		3611
1969	2824				3055		3980

Years	OECD Maddison international dollars 1990[1,2]	UN National Accounts dollars 2005[3]	Atlaseco Université de Sherbrook dollars PPP 2000[1,4]	University of Gröningen dollars PPP 1996[5]	World Table Pennsylvania University dollars 1996[1,6]	University of Warwick dollars PPP 1990[7]	V. Axenciuc GDP per capita dollars PPP 1990
1	2	3	4	5	6	7	8
1970	2853	1679			3262		4360
1971	3221	1877			3626		4647
1972	3396	2057			4013		4962
1973	3477	2253			4233	3457	5551
1974	3637	2506			4802		5548
1975	3761	2737			5404		5615
1976	3917	3013			5658		6187
1977	3966	3234			6446		6394
1978	4063	3439			7282		6890
1979	4148	3624			7642		7060
1980	4135	3753	7639		7715		7296
1981	4087	3731	7645		7369		7252
1982	4072	3857	7907		7426		7504
1983	4027	4076	8360		7486		7933
1984	4178	4306	8826		7717		8378
1985	4159	4283	8779		7632		8333
1986	4215	4364	8951		7836		8489
1987	4110	4378	8987		7820		8518
1988	4085	4335	8887		7789		8437
1989	3941	4067	8336	7576	7254		7910
1990	3511	3829	7851	6739	6969	3460	7449
1991	3063	3338	6845	5926	6019		6491
1992	2797	3098	6348	5461	5576		6020
1993	2843	3150	6454	5695	5634		6119
1994	2957	3277	6717	5931	5841		6364
1995	3174	3519	7214	6371	6177		6832
1996	3307	3670	7527	6636	6443		7127
1997	3114	3457	7085	6195	6074		6711
1998	2972	3297	6761	5760	5923		6402
1999	2943	3266	6693		5814		6337
2000	3002	3348	6838		6141	3008	6474

1) Calculated at the current la territory of Romania.
2) A. Maddison, *The World Economy: Historical Statistics*, OECD Development Center Studies, 2004.
3) ONU Statistics Division, *National Accounts*, Main Aggregates Database.
4) Atlaseco, *Perspectiv Mondo*, Université de Sherbrook.
5) B. van Ark, *Economic Growth and Labor Productivity in Europe. Half a Century of East-West Comparisons*, Gröningen Growth and Development Center, University of Gröningen, 2000.
6) *World Table*, The Center of Internationl Comparisons, Pennsylvania University.
7) S. Broadberry, A. Klein, *Agregate and per capita GDP in Europe, 1870-2000: Continental, Regional and National Data with Changing Boundaries*, University of Warwick, United Kingdom, 2011.

Source:V. Axenciuc, *Produsul Intern Brut al României 1862-2000*, Editura Economică, Volumul I, București, 2012, Table A24, pp. 83-84.

We appreciate that our estimates for Romania, i.e. a level of GDP *per capita* situated between $ 6500 and $ 7500 during 1990-2000, are closer to reality, and, as seen from the data in Table 3, in line with estimates by other institutions (the universities of Sherbrook, Groningen and Pennsylvania) and, as to show further, with the ones of the United Nations and the World Bank, according to the International Comparison Programme.

Skipping over the different levels of historical series regarding the GDP *per capita*, from the different authors and institutions, we think that the major disparities between countries revealed by these estimates are much more important.

For example, the calculations carried out by professors Stephen Broadberry and Alexander Klein of the University of Warwick[125], showed that in the last 130 years, the relative and absolute gaps between Romania and other European countries in terms of GDP *per capita* at PPP increased, compared both to the advanced Western countries and the Eastern countries. The data presented in Table 4 show that, if in 1870, the GDP *per capita* at PPP in Germany, France, Italy, the Netherlands, was 1.5-2.1 times higher than that of Romania, in 1937 this ratio increased to 2.9-4.0 times, and in 2000 to 6.3-7.2 times.

Table 4

The evolution of GDP *per capita* (PPP) gaps in Romania (=1.00) compared to other European countries, during 1850-1973

Region / Country	1850	1870	1890	1910	1925	1938	1950	1973
Western Europe	-	-	-	-	2.25	2.45	2.85	1.66
France	1.75	2.08	2.09	2.21	2.83	2.73	3.56	2.23
Germany (West)	1.62	2.03	2.18	2.30	2.25	3.28	2.92	2.11
Italy	1.46	1.49	1.26	1.19	1.52	1.61	1.85	1.25
Netherlands	2.25	2.41	2.38	2.30	2.88	2.68	3.19	1.72
Eastern Europe	-	-	-	-	1.00	1.48	1.78	1.37
Bulgaria	-	1.05	1.02	0.88	0.96	1.22	1.33	1.29
Czechoslovakia	-	-	-	-	1.59	1.60	2.46	1.79
Poland	-	-	-	-	0.78	1.08	1.74	1.35
Hungary	-	-	-	-	1.16	1.31	1.76	1.36
Romania	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**

Note: the country boundaries are those from the respective years.
Source: authors calculations, based on GDP data, in 1990 dollars, PPP, from: S. Broadberry, A. Klein, *Agregate and per capita GDP in Europe, 1870-2000: Continental, Regional and National Data with Changing Boundaries*, University of Warwick, United Kingdom, 2011.

[125] S. Broadberry, A. Klein, *Agregate and per capita GDP in Europe, 1870-2000: Continental, Regional and National Data with Changing Boundaries*, University of Warwick, United Kingdom, 2011.

Also, compared with 1870, when the GDP *per capita* at PPP in Bulgaria represented only about 70% of that of Romania, in 2000, it was 1.7 times higher than that of our country. Relatively to Czechoslovakia, Poland and Hungary, compared with 1913, when the GDP *per capita* at PPP in Romania's case was only 1.2-1.4 times lower, in 1973 this ratio reached 1,5-2.0 in disfavor of our country, increasing to 2.4-3.0 in 2000.

Considering another attempt in building long data series of macroeconomic indicators, belonging to the Swiss historian Paul Bairoch[126], the evolution of differences between Romania's GDP *per capita* at PPP and some countries in Western Europe, respectively Eastern Europe, during the period 1850-1973 is presented in Table 5.

Table 5

The evolution of GNP *per capita* gaps in Romania (= 1,00) compared to other European countries, during 1870-2000

Region / Country	1870	1890	1913	1937	1950	1973	1990	2000
France	1.53	1.59	1.90	3.49	4.20	3.77	5.23	7.06
Germany	1.76	1.98	2.45	4.01	3.76	3.75	5.36	6.30
Italy	1.61	1.44	1.60	2.88	3.04	3.32	4.64	6.30
Netherlands	2.11	2.00	2.08	3.97	4.49	3.86	4.99	7.18
Bulgaria	0.71	0.78	0.85	1.24	1.34	1.53	1.60	1.70
Czechoslovakia	…	…	1.24	2.28	2.92	2.02	2.45	3.04
Poland	…	…	1.14	1.59	2.08	1.54	1.48	2.40
Hungary	…	…	1.43	2.16	2.11	1.62	1.87	2.36
Romania	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**

Note: the country boundaries are those from the respective years; the frontier between Wesstarn Europe and Eastern Europe, defined by Bairoch, correspond to the „Iron Curtain" (Bairoch, 1976, p. 317).
Source: authors calculations, based on GDP data, in 1990 dollars, PPP, from: Paul Bairoch, *European Gross National Product 1800-1975*, in: Journal of European Economic History, No. 5, 1976.

It is worth mentioning that during 125 years, on the whole period, these gaps have increased significantly, especially if the size in absolute terms is taken into account. Comparing with Germany, France, Italy, the Netherlands, while in 1850, the gaps in disfavor of Romania were situated between 1.5 and 2.1, similar to those revealed by Broadberry and Klein, in 1938 these increased to 1.6-3.7, after which a slight decrease was recorded up to 1973, a similar trend with the one resulted from the figures presented in the Table 4.

[126]P. Bairoch, *European Gross National Product 1800-1975*, în: Journal of European Economic History, No. 5, 1976.

As regards the comparison with the countries of Eastern Europe, if in 1925, the GNP *per capita* in Romania was higher than that of Bulgaria and Poland, and lower compared to Czechoslovakia and Hungary, in 1973, gaps in disfavor of our country, between 1.3 and 1.8 were recorded relatively to all these states.

4.2 The UN and the World Bank International Comparison Programme.

Since the second half of the twentieth century, concerted actions focusing on drawing sets of synthetic macroeconomic indicators (national income, gross domestic product, gross national product etc.) utilized for substantiating the development strategies and economic and social policies were initiated.

These indicators were calculated both at the national level, in most countries, by official statistics or individual researchers and international level by official and / or private economic, financial or research institutions.

Thus, data series of macroeconomic indicators on short and medium term have been produced, which, continued until today, have become long-term series. The calculation methodologies, in addition to those generated by economic and social systems - National Accounts and material production system- were also varied, suffering revisions and updates, the most important being previously presented and discussed.

One of the most notable event that have focused the efforts, mainly from the US, and have contributed to building a system of National Accounts according to standards that allow international comparisons was the organization, under NBER (National Bureau of Economic Research) aegis, of a series of conferences on researches regarding the income and wealth, held in Princeton in the 50s. At the edition of October 1954, John W. Kendrick, editor of the Conference volume, noted some progress towards international comparability of national economic accounts, highlighting the importance of developing uniform standards regarding the size and structure of national macroeconomic aggregates, so as to eliminate the risk of knowledge counterfeiting in this domain[127].

An imperative of the various systems and methods for global indicators calculation was their compatibility in order to allow the comparisons between different countries. Mainly, the global institutions which looked for comparisons based on a single common monetary unit of the synthetic indicators, have initially adopted, as factor conversion, the average annual exchange rate and / or adjusted by the price index.

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[127] J. W. Kendrick (editor) *Problems in the International Comparison of Economic Accounts*, The Conference on Research in Income and Wealth, CWER, Princeton University Press, 1957, pp. 3-6.

In the 60s and 70s, several prominent researchers have developed a new method for international comparisons, based on purchasing power parity of currencies, which, since then, is constantly refined, updated and generalized[128].

In the landscape of the global scale comparisons, an International Comparison Programme (ICP) was set up and implemented, based on purchasing power parities of national currencies with the international dollar.

Systematic worldwide researches, under the aegis of the United Nations and the World Bank support, date back to 1968 when the ICP project started.

The first report was published in 1975 and included, based on a multilateral comparisons methodology, the calculations of GDP at purchasing power parity for ten countries and the years 1967 and 1970. This first pilot phase was followed by others, increasing gradually the number of participating countries or regional groups of countries, in parallel with continuous improvements in calculation methodology, including through the involvement of national statistical offices and Eurostat, both as inter-regional technical assistants and comparable data providers.

Currently, the ICP includes 199 countries, providing comparable data regarding GDP and its components on the expenditure side, by the conversion at the purchasing power parity (PPP) estimated based on surveys that collect data on prices and costs considering the full range of final products and services recorded for GDP calculation, including consumer goods and services, government services and capital goods[129].

It is worth mentioning that PPP represents both spatial deflators and currency converters, each nation's GDP being thus expressed in comparable prices and converted into a single currency (international dollar). By dividing the result to the population number, the real wellbeing of the citizens may be reflected, considering also the limitations previously mentioned.

The aggregation systems into international prices used by the ICP are extremely complex, implying a series of iterative processes and methods, among these the Geary-Khamis, EKS and therewith additive or associated systems.

[128]See the works of R.C. Geary, *A Note on the Comparison of Exchange Rates and Purchasing Power BetweenCountries* (1958); D. Paige, G. Bombach, *A Comparison of National Output and Productivity*, OEEC, Paris (1959); H. Salam, A. Khamis, *A New System of Index Numbers for National and International Purposes* (1972); B. Irving, Z. Kravis, A.W. Kenessey, H.R. Summers, *A System of International Comparisons of Gross Product and Purchasing Power* (1975) etc.
[129]United Nations, *Report of the World Bank on the interim activities of the International Comparison Programme*, Statistical Commission, Forty-seventh session, CN.3/2016/10, 8-11 March, 2016.

4.3 Romania's position in the global rankings of GDP *per capita* at PPP

The overall picture of the evolution of GDP *per capita* in comparable prices has registered significant changes at global scale during the 35 years of our analysis, noting that 1980 is the first available year of data series from the IMF WEO Database.

Table 6

The evolution of GDP *per capita* at PPP during 1980 – 2015

- current international dollars -

Year / Country	1980	1989	1990	2000	2005	2008	2009	2010	2015
Austria	11,166	18,812	20,201	30,754	36,644	42,421	40,989	42,145	47,031
Belgium	10,977	18,706	19,966	29,714	35,659	40,206	39,134	40,278	43,800
Bulgaria	4,652	9,200	8,743	7,631	11,676	15,388	14,811	15,208	18,326
Croatia	…	…	…	12,444	17,694	21,476	20,073	20,034	21,169
Cyprus	6,297	13,990	15,262	24,422	30,641	35,062	33,669	33,703	30,769
Czech Republic	…	…	…	16,524	22,677	27,947	26,584	27,431	30,895
Denmark	11,528	20,238	21,272	32,715	38,699	42,874	40,736	41,726	45,451
Estonia	…	…	…	11,756	19,221	23,746	20,442	21,245	27,994
Finland	9,653	18,129	18,808	27,352	34,420	40,395	37,161	38,569	40,838
France	10,763	18,524	19,661	28,514	33,571	37,313	36,297	37,284	41,018
Germany	11,222	19,179	20,631	29,529	34,003	39,920	38,072	40,080	46,895
Greece	8,998	13,357	13,760	20,064	26,818	31,253	30,084	28,810	26,773
Hungary	6,288	10,881	10,937	14,152	19,778	22,613	21,321	21,789	25,895
Ireland	7,593	13,137	14,689	32,982	43,057	46,149	43,074	43,275	51,118
Italy	10,551	18,929	20,016	28,614	33,128	36,123	34,200	35,097	35,811
Latvia	…	…	…	8,797	15,664	20,584	18,037	18,087	24,540
Lithuania	…	…	…	9,790	16,399	22,507	19,534	20,521	28,210
Luxemburg	15,348	33,563	36,243	63,611	78,089	89,992	84,288	88,063	93,173
Netherlands	11,715	19,658	21,091	33,051	38,436	45,447	44,055	44,839	48,317
Poland	4,724	6,847	6,529	11,559	15,065	19,259	19,906	20,956	26,210
Portugal	5,991	11,380	12,752	20,460	23,508	26,315	25,700	26,496	27,624
Slovakia	…	…	…	12,346	17,727	24,092	22,933	24,278	29,209
Slovenia	…	…	…	17,975	23,973	29,999	27,567	28,043	30,508
Spain	7,944	14,336	15,412	24,239	29,665	33,220	32,008	32,269	34,899
Sweden	10,844	18,878	19,631	29,256	36,735	41,704	39,482	42,021	47,228
United Kingdom	8,707	16,466	17,118	25,853	32,807	36,574	35,039	35,872	40,676
ROMANIA	**4,797**	**7,531**	**7,362**	**8,046**	**12,358**	**16,771**	**15,728**	**15,821**	**20,526**
China	302	899	954	2,846	4,937	7,399	8,103	9,012	13,801
India	566	1,103	1,177	2,041	2,938	3,788	4,084	4,495	6,265
Japan	8,539	17,517	19,110	25,519	30,197	33,429	31,825	33,713	38,215
South Korea	2,183	6,667	7,518	16,452	22,741	27,522	27,795	29,824	36,601
Norway	14,973	26,562	27,967	46,488	56,578	62,489	61,230	61,520	67,445
USA	12,575	22,879	23,913	36,432	44,218	48,302	46,909	48,309	56,421

Source: World Economic Outlook Database, International Monetary Fund.

As show the data presented in Table 6, the Romania's GDP *per capita* (at PPP), increased by almost four times during the period 1980-2015. Under these circumstances, as compared to other countries, which recorded similar GDP growth rates, the relative gap, of 2-3 times in the disfavor of Romania, has been maintained (Table 7).

Table 7

The evolution of GDP *per capita* (PPP) gaps during 1980 – 2015

Romania= 1.00

Year / Country	1980	1989	1990	2000	2005	2008	2009	2010	2015
Austria	2.33	2.50	2.74	3.82	2.97	2.53	2.61	2.66	2.29
Belgium	2.29	2.48	2.71	3.69	2.89	2.40	2.49	2.55	2.13
Bulgaria	0.97	1.22	1.19	0.95	0.94	0.92	0.94	0.96	0.89
Croatia	n/a	n/a	n/a	1.55	1.43	1.28	1.28	1.27	1.03
Cyprus	1.31	1.86	2.07	3.04	2.48	2.09	2.14	2.13	1.50
Czech Republic	n/a	n/a	n/a	2.05	1.84	1.67	1.69	1.73	1.51
Denmark	2.40	2.69	2.89	4.07	3.13	2.56	2.59	2.64	2.21
Estonia	n/a	n/a	n/a	1.46	1.56	1.42	1.30	1.34	1.36
Finland	2.01	2.41	2.55	3.40	2.79	2.41	2.36	2.44	1.99
France	2.24	2.46	2.67	3.54	2.72	2.22	2.31	2.36	2.00
Germany	2.34	2.55	2.80	3.67	2.75	2.38	2.42	2.53	2.28
Greece	1.88	1.77	1.87	2.49	2.17	1.86	1.91	1.82	1.30
Hungary	1.31	1.44	1.49	1.76	1.60	1.35	1.36	1.38	1.26
Ireland	1.58	1.74	2.00	4.10	3.48	2.75	2.74	2.74	2.49
Italy	2.20	2.51	2.72	3.56	2.68	2.15	2.17	2.22	1.74
Latvia	n/a	n/a	n/a	1.09	1.27	1.23	1.15	1.14	1.20
Lithuania	n/a	n/a	n/a	1.22	1.33	1.34	1.24	1.30	1.37
Luxemburg	3.20	4.46	4.92	7.91	6.32	5.37	5.36	5.57	4.54
Netherlands	2.44	2.61	2.86	4.11	3.11	2.71	2.80	2.83	2.35
Poland	0.98	0.91	0.89	1.44	1.22	1.15	1.27	1.32	1.28
Portugal	1.25	1.51	1.73	2.54	1.90	1.57	1.63	1.67	1.35
Slovakia	n/a	n/a	n/a	1.53	1.43	1.44	1.46	1.53	1.42
Slovenia	n/a	n/a	n/a	2.23	1.94	1.79	1.75	1.77	1.49
Spain	1.66	1.90	2.09	3.01	2.40	1.98	2.04	2.04	1.70
Sweden	2.26	2.51	2.67	3.64	2.97	2.49	2.51	2.66	2.30
United Kingdom	1.82	2.19	2.33	3.21	2.65	2.18	2.23	2.27	1.98
ROMANIA	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**
China	0.06	0.12	0.13	0.35	0.40	0.44	0.52	0.57	0.67
India	0.12	0.15	0.16	0.25	0.24	0.23	0.26	0.28	0.31
Japan	1.78	2.33	2.60	3.17	2.44	1.99	2.02	2.13	1.86
South Korea	0.46	0.89	1.02	2.04	1.84	1.64	1.77	1.89	1.78
Norway	3.12	3.53	3.80	5.78	4.58	3.73	3.89	3.89	3.29
USA	2.62	3.04	3.25	4.53	3.58	2.88	2.98	3.05	2.75

Source: based on Table 6 data

Comparing with countries from Eastern Europe, it became obvious that, while in relation to the Czech Republic, Slovakia, Hungary and Slovenia, the relative GDP gaps of Romania registered a slight decrease, as concerns the comparison with Poland, the situation has reversed, i.e. from a parity registered in 1980, to an unfavorable report of 1:1.3 in 2015.

As compared to many advanced countries (Germany, Netherlands, Norway, Finland and Austria) relative gaps for more than 2:1 in disfavor of Romania have remained. In relation to other advanced countries (US, Japan, South Korea, United Kingdom, Sweden and Ireland) these gaps have increased just over 3:1. Only compared to some advanced countries (Italy, France and Denmark) Romania has slightly reduced the relative GDP gaps during the reference period.

However, it should be stressed that except Bulgaria, the differences in absolute terms concerning the GDP *per capita* recorded an increase in Romania compared to all EU countries. Comparing with some advanced countries (Germany, Austria, Sweden and Netherlands) the gaps of 6,000 - 7,000 dollars existing in 1980 rose to about 26,000-28,000 dollars in 2015.

In this context, it has to be highlighted the remarkable evolution of several countries during the last 35 years, such as China, which recorded an increase by about 45 times of its GDP *per capita* at PPP, South Korea, with an increase by about 17 times and India, with an increase by about 11 times, which allowed these countries to achieve a significant reduction in their development gaps compared to advanced countries.

At European level, the International Comparison Programme, including on prices and purchasing power parity, is run under the coordination of UNECE, OECD and Eurostat.

It is important to note that the estimated data on GDP at PPP under this program focuses only on OECD countries and a number of 6 non-member countries (China, Colombia, India, Indonesia, Russian Federation and South African Republic).

5. Eurostat indicators for the EU cross country comparisons

5.1 The GDP conversion at Purchasing Power Standard (PPS) and the Actual Individual Consumption.

According to the methodology used by the UN and the World Bank, the consistency of GDP at PPP conversion depends on the quality of data collection on prices, some imperfections or distortions can occur due to spatial and temporal differences in terms of the consumer basket, namely its representativeness in relation to market realities, so diverse and rapidly changing.

Based on these considerations, at European Union level, Eurostat uses, as analytical tool for international comparisons, the estimates of GDP at purchasing power standard (PPS), which basically is an artificial coin that can be interpreted as an exchange rate of euro compared to PPP. It is appreciated that the conversion at purchasing power standard takes into account, in a more appropriate manner, the price differences between the EU Member States and the currency fluctuations[130].

However, it is worth mentioning that, in the case of regional comparisons within the EU, at NUTS 2 level, the utilization of the same conversion rates at PPS as the national level ones cannot provide an accurate picture concerning the real regional disparities and the divergence deepening, already seized in the last period, given the significant price differences between different areas and regions of the EU, including in Romania's territory case.

At the level of the EU Member States, the GDP expressed in PPS is of particular importance, being used to assess the level of real convergence, both for highlighting the progress of the economy and as a criterion for the accession to the Eurozone.

On a larger scale, from this point of view, it should be stressed that, unlike institutional and nominal convergence, which are evaluated according to some indicators which have became classics, assessing the real convergence, which has a decisive role in the architecture and dynamics of the process across the entire Europe Union, relies almost exclusively on the indicator GDP at PPS and the related gaps compared to the EU average.

Depending on the case, possible qualitative considerations concerning the economic governance, functionality of the institutional framework, the health of the banking sector and other considerations can be added.

As concerns the GDP expressed in PPS, the data presented in Table 8, show that Romania has made significant progress in reducing the relative gap compared to the EU28 average, respectively, from 26.3% in 2000 to 34% in 2004 and to 57% in 2015, by registering a double pace of GDP *per capita* growth rate comparing with the EU28 average and gaining 31 percentage points in 15 years, of which 23 percentage points only in the last decade.

It is also worth noting that, according to GDP in PPS as percent of EU average, in some countries, a process of convergence has been recorded, either ascending (especially the countries of Central and Eastern Europe and the Baltic's) or descending (Belgium, Italy, Spain, Netherlands, Finland, Sweden and United Kingdom).

[130]F. Magnien, *The Measure of GDP per capita in Puchasing Power Standard (PPS)*, OECD Meeting of National Accounts Experts, Paris, 8-11 October, 2002.

Table 8

The evolution of GDP *per capita* at PPS in Romania compared to other EU28 Member Countries during 2004-2015

- % of EU28 average -

Year/ / Country	2004	2007	2008	2011	2015
EU28 average	**100**	**100**	**100**	**100**	**100**
Belgium	120	115	114	119	117
Bulgaria	35	42	45	45	46
Czech Republic	79	83	81	83	85
Denmark	125	121	123	125	124
Germany	117	117	118	124	125
Estonia	55	68	68	69	74
Ireland	144	146	132	132	145
Greece	96	92	94	77	71
Spain	100	103	101	94	92
France	109	107	106	108	106
Croatia	57	61	63	59	58
Italy	108	105	105	102	95
Cyprus	97	100	105	96	81
Latvia	47	60	60	56	64
Lithuania	50	60	63	65	74
Luxemburg	246	259	255	263	271
Hungary	62	61	63	65	68
Malta	80	78	80	84	89
Netherlands	133	137	139	134	129
Austria	127	123	124	127	127
Poland	49	53	54	64	69
Portugal	76	79	79	78	77
ROMANIA	**34**	**41**	**48**	**51**	**57**
Slovenia	85	87	89	82	83
Slovakia	56	67	71	73	77
Finland	117	117	120	116	108
Sweden	129	127	126	126	123
United Kingdom	125	117	114	106	110

Source: Eurostat

However, other countries witnessed a divergence process by distancing from the EU28 average and gaps increases, either positively (the case of Germany being the most significant one) or negatively (Greece and Cyprus, the most affected ones by the financial crisis).

Referring to Romania, we should mention that, despite progress in the catching up with the advanced EU countries due to the closeness of GDP *per capita* at PPS relative to the EU average in percentage terms, there remain significant gaps in absolute terms.

Over the last 15 years these gaps have been reduced by only about 1,600 euros i.e. from about 14,000 euro in 2000 to about 12,400 euro in 2015. In Figure 2, suggestively, the evolution of absolute gaps, somehow unfavorable to Romania is revealed.

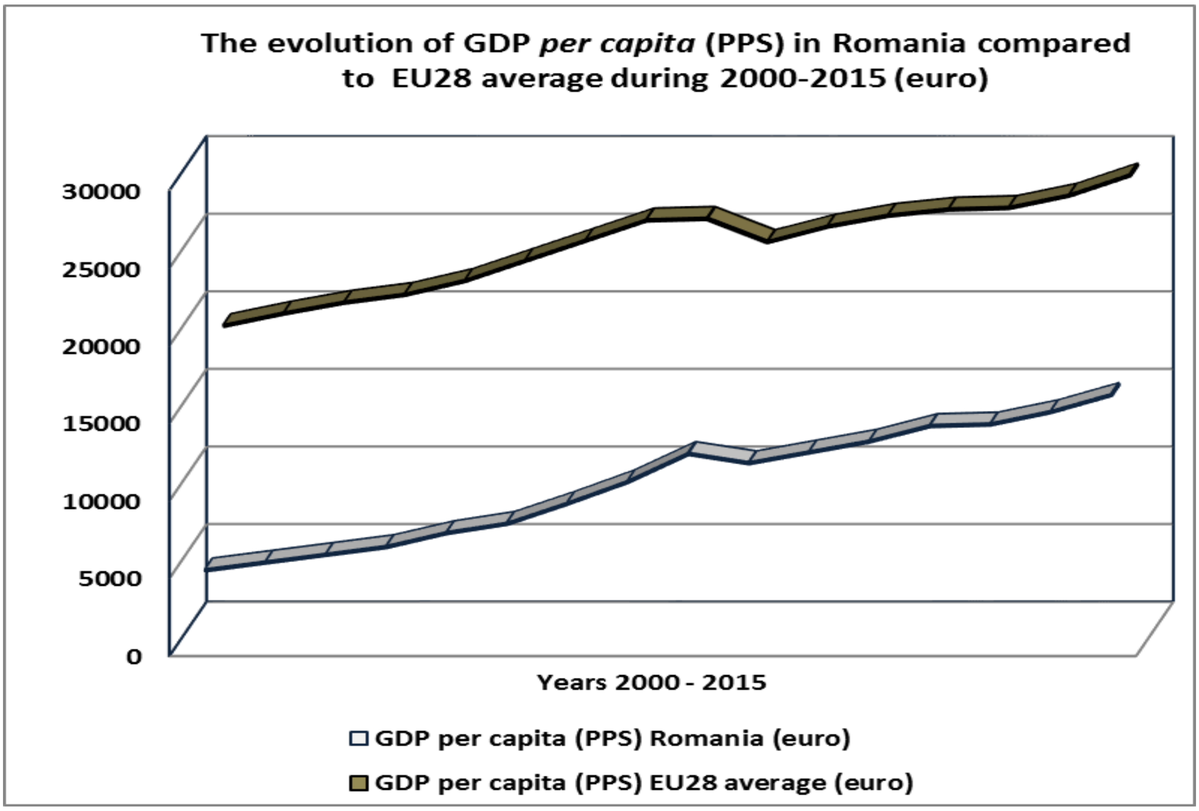

Figure 2

Source: based on Eurostat data.

In order to improve the international comparisons, at the UN and the World Bank levels, starting from 2014, the Actual Individual Consumption (AIC) is calculated, as a more appropriate indicator reflecting the level of citizen's wellbeing.

According to an agreed methodology, to which Eurostat and OECD have contributed, this indicator is calculated on the bases of goods and services effectively entered the household consumption, whether they were paid by households, government or non-profit organizations[131].

From this point of view, one can say that the calculation of AIC is likely to improve the comparability in the cross-country analysis, removing the differences in the systems of

[131]The World Bank, *Purchasing Power Parities and Real Expenditures of World Economies. Summary of Results and Findings of the 2011 International Comparison Program*, WB, Washington, 2014.

organization and funding of important services such as education or health, i.e. direct payments incurred by households for providing these services.

In Table 9 the evolution of GDP and Actual Individual Consumption *per capita* at PPS in Romania is presented compared to other EU28 Member States, during 2012-2015.

Table 9

The evolution of GDP and AIC *per capita* at PPS in Romania compared to other EU28 Member Countries, during 2012-2015

- % of EU28 average -

Year/ / Country	GDP *per capita* (PPS)				Actual Individual Consumption *per capita* (AIC)			
	2012	2013	2014	2015	2012	2013	2014	2015
EU28 average	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Belgium	120	120	118	117	112	114	113	112
Bulgaria	46	46	47	46	50	50	51	51
Czech Republic	82	83	84	85	72	75	76	76
Denmark	126	126	125	124	115	116	114	114
Germany	124	124	126	125	123	124	124	124
Estonia	74	75	76	74	65	67	68	69
Ireland	131	131	134	145	96	95	96	95
Greece	74	74	73	71	84	84	83	81
Spain	92	91	91	92	88	87	87	88
France	107	108	107	106	110	113	111	111
Croatia	60	59	59	58	59	59	59	58
Italy	101	98	96	95	102	99	98	97
Cyprus	91	84	82	81	95	90	90	90
Latvia	60	62	64	64	60	64	65	66
Lithuania	70	73	75	74	74	79	81	82
Luxemburg	258	264	266	271	141	141	141	137
Hungary	65	66	68	68	62	62	62	62
Malta	84	86	86	89	80	79	79	81
Netherlands	132	132	131	129	115	114	112	111
Austria	131	131	129	127	121	123	122	119
Poland	66	67	68	69	73	73	74	74
Portugal	77	77	78	77	82	82	83	83
ROMANIA	**54**	**54**	**55**	**57**	**55**	**54**	**55**	**58**
Slovenia	81	80	82	83	78	75	75	74
Slovakia	74	76	77	77	73	75	75	74
Finland	115	113	110	108	115	114	114	113
Sweden	127	124	123	123	114	111	111	111
United Kingdom	107	108	109	110	115	114	115	116

Source: Eurostat

The data show that, in many EU advanced countries (Germany, Netherlands, Austria, Denmark, Sweden, Belgium), even if there are no significant differences between the relative positions of both indicators against the EU28 for the same countries, in general, the GDP *per capita* stands a few percentage points over the AIC *per capita*, except for Ireland, where this difference was about 50 percentage points in 2015.

In other advanced EU countries (France, United Kingdom and Finland), due also to higher levels of government spending on education and health, the GDP *per capita* is less by 5-6 percentage points than the AIC *per capita*, compared to the EU28 average.

Regarding the emerging countries of Central and Eastern Europe, all situated below the EU28 average for both indicators, it was found that in Czech Republic, Estonia and Slovenia, the GDP *per capita* stood for 5-10 percentage points higher than the AIC *per capita*, while in Bulgaria, Lithuania and Poland, for 5-8 percentage points lower. In the case of Croatia, both indicators stood at the same level (58%) compared to the EU28 average, as in the one of Slovakia, but at a significantly higher level (77%).

Referring to Romania, we found that the relative position of GDP *per capita* and AIC *per capita* relative to the EU28 average is similar, i.e. between 54% and 55% in 2012-2014, registering a slight increase in 2015, for both indicators, up to 57% and 58% respectively, our country remaining on the penultimate position in the European hierarchy in this regard, ahead only of Bulgaria.

In this context we should mention that, for analytical purposes, including international comparisons, a distinction between the Gross Domestic Product (GDP) and Gross National Product (GNP) is made, according to territorial (or geographical location) criterion and respectively national (or ownership location) one.

If GDP is an indicator of the market value of all goods and services produced within the borders of a state, the GNP reflects the market value of goods and services produced by labor and property supplied by the citizens (residents) of a country.

So, GNP measures the incomes generated both internally and externally, being calculated by subtracting or adding to the GDP, the result of the balance between incomes earned by residents in other countries and incomes earned by nonresidents in the domestic economy. It is worth mentioning that GNP takes into account only the productive activities, irrespective of gains / losses arising from changes in value of fixed and / or financial assets.

The international financial institutions, mainly for operational purposes, have gradually replaced the GNP with Gross National Income (GNI), an identical concept, but different in the calculation methodology, being obtained on the basis of data from the current account balance of payments, by amending the GDP with the factor incomes derived from the balance between primary incomes received from "the rest of the world" by resident units and primary incomes paid by resident to the nonresident units.

In general, the differences between these two indicators are not significant. In the US for example, the GNI is only about one percent higher than GDP. In the case of Romania, while GDP amounted to 160.4 billion euro in 2015, GNI stood for 157.3 billion euro i.e. by about 2 percent lower, due to the negative balance of residents-nonresidents primary incomes.

The World Bank, in order to guide its administrative and financial assistance policy, classifies the 187 member countries in four groups according to their development level, the main criterion being the indicator GNI *per capita* (expressed in dollars by converting the national currencies applying the WB Atlas method, adjusted to PPP) as follows:

- countries with advanced economies (high-incomes): more than 12,500 $
- developing countries with upper-middle income: $ 4,000 – 12,500
- developing countries with lower-middle incomes: $ 1,000 – 4,000
- less developed countries (low-incomes): below $ 1,000

These thresholds, updated annually with adjustments for inflation, are used by the World Bank to determine its operational lending policy i.e. for establishing the lending terms and eligibility for classifying different countries in one of the 3 types / modalities of funds allocation. For example, the less developed countries receive a preferential treatment IDA (International Development Association), through interest-free loans granted, in particular, to support programs in the fight against poverty on the medium and long run.

At the EU level, according to the principles of solidarity and ability to pay and of financing based on own resources, the main revenue source of the EU budget (accounting for more than ¾) comes from the Member States contribution, which is calculated as a percentage of Gross National Income (*GNI-based own resource*), representing approximately 0.7% on average at EU28 overall.

The cohesion policy of the European Union provides the allocation of important funds aimed to promote sustainable development and reduce economic and social disparities, including the supporting of infrastructure projects, which are granted to those countries with a level of GNI *per capita* below 90% of the EU average.

In this context it should be also mentioned that the eligibility of the regions (NUTS 2) for the allocation of funds from the Community budget is determined according to GDP *per capita* in PPS, respectively for the regions where this indicator recorded a level below 75% of the EU average. For example, for the financial period 2014-2020, Romania's structural and investment funds allocated from the EU budget amount to about 22 billion euro, of which about 7 billion euro from the Cohesion Fund, about 10 billion euro from the European Regional Development Fund and about 5 billion euro from the European Social Fund.

5.2 Romania and the real convergence with the EU countries.

Following the financial and economic crisis of 2008-2009, in order to monitor the financial stability of the European Union and to prevent excessive external imbalances, generated also by high levels of current account deficits and / or an unsustainable degree of external indebtedness, the European Commission introduced in 2011 a mechanism for the supervision, alert and resolution of macroeconomic imbalances (MIP - Macroeconomic Imbalance Procedure) which, indirectly, monitors also the progress towards real convergence of the Member States [132].

This mechanism is based on a risk dashboard (MIP Scoreboard) that includes a set of 14 core indicators, each of them associated with alert (reference) thresholds and 34 auxiliary indicators.Every year, the European Commission publishes a report (Alert Mechanism Report) identifying the Member States requiring a more detailed analysis in order to identify imbalances, assessing their nature and severity and providing corrective actions if they are appreciated as excessive[133].

Currently, Romania complies with all basic indicators monitored by the MIP Scoreboard, except for the Net International Investment Position (NIIP), which exceeds the threshold (-50.2% of GDP at end-2015 in Romania, compared to the MIP alert threshold of -35%), mentioning that a clear downward trend is registered in recent years, comparing with the peak of -70.4% of GDP in 2012[134].

Looking to the coming decades, according to estimates by scenarios developed under the aegis of the Romanian Academy, the convergence of Romania with the Member States of the European Union is expected to accelerate so that, under the circumstances of achieving sustained growth rates, the GDP *per capita* (at PPS) would be around the EU average by the year 2035[135].

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[132]European Commission, *Scoreboard for the Surveillance of Macroeconomic Imbalances*, European Economy Occasional PapersNo 92, EC-DGECFIN, Brussels, 2012.

[133]European Commission, *Alert Mechanism Report 2016*, COM (2015) 691, EC, Brussels, November 26, 2015.

[134] G. Georgescu, *Prospects of Romania's international investment position and financial stability risks*, MPRA Paper 69501, January, 2016.

[135]Academician Vlad Ionel-Valentin (coordinator) *Strategia de dezvoltare a Romaniei în urmatorii 20 de ani* (The Strategy of Romania's development during the next two decades), Vol. I, Editura Academiei, Bucharest, 2015, p. 271.

Increasing the integration with the EU countries would require joining the Eurozone. The year 2019 established by the Romanian Government, in 2014, as target year for joining the EMU has proven unrealistic, both as convergence degree in terms of GDP *per capita* (at PPS) and the preparedness, from economic and institutional point of view, especially if one considers that this approach requires the completion of preliminary phases (the accession to the Banking Union, two years earlier entry into the Exchange Rate Mechanism ERM II), which had not even been initiated up to 2017.

In our opinion, it would be more realistic, under a favorable internal and external environment, to develop a consistent roadmap on short, medium and long term, agreed by all political, social and civic stakeholders, accompanied by the implementation of coherent, economic, budgetary, monetary, social and environmental policies, coordinated with those of the European Union, including their support by absorbing the largest possible proportion of the EU allocated funds, as well as Romania's participation in Community investment programs.

Under these circumstances, the time horizon of Romania's accession to Economic and Monetary Union can be configured by the years 2023-2025. By maintaining further within the parameters of institutional and nominal convergence criteria and recording significant progress in the real convergence, the indicators GDP and AIC *per capita* (at PPS) are expected to reach about 75-80% of the EU average in the anticipated timeframe, while reducing the development disparities, both at the country and regional levels.

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Addendum 1

Foreword to the Romanian edition

Professor Vergil Voineagu, President of National Institute of Statistics[136]

Result of long and laborious research on Romania's development, over almost 140 years, Professor Victor Axenciuc's study "*Romania's Gross Domestic Product duringthe 1862 - 2000 periods"*, is a book that really deserves this qualification. It even exceeds it due to its amplitude, originality, and, last but not least, by its analysis demonstration, converted into a rigorous synthesis achieved with a minimum of text meant to maximize the share of information hosted by any word, by any figure.

If I am allowed to make the comparison, it is a work which reminds one of those titanic endeavours developed in other temporal areas of the spirit by Bogdan Petriceicu Hașdeu with his infinite dictionary of Romanism, *"Etimologicum Magnum Romaniae"*, or by Nicolae Iorga, when he decided to settle on the historian's study table his *"Codex Hurmuzachi"*.

Well, professor Victor Axenciuc places Romania's undistorted image at the disposal of today's statisticians and economists, and especially those of the tomorrow, by reconstructing a historical series of the most comprehensive macroeconomic indicators. The literature of countries with an old and recognized reputation for the seriousness of their statistics sums up the creative efforts of dozens of researchers gathered in institutions, clearly benefiting from an important public support, but Victor Axenciuc and the few collaborators that followed him in this audacious approach, have achieved everything alone.

He had the patience, dedication, tenacity, in a word the devotion to offer the Romanian economic science the meeting of an objective, craved by many, but achieved by noone so far.

Testimony to this notorious oneness are the previous writings and studies of the scientist Victor Axenciuc, which are exemplary for restoring the figures placed chronologically, coherently and consistently in the book of the history of Romania's national economy.

The author's efforts are worth mentioning in the present foreword, as is his group of collaborators who helped to conceptualize the study, identify sources of data and information, elaborate approaches and procedures, formulate and describe the historical conditions, operate calculations, techniques and methods of aggregation of the available data and

[136] Victor Axenciuc, *Produsul Intern Brut al României 1862-2000*, Editura Economică, Vol. I, București, 2012.

information, adopt the solutions considered the most relevant and compile data sets, that one will hardly be able to challenge otherwise than by repeating the whole process. The best, though, would be to leave things as they were designed by professor Axenciuc, in order to be able to value them all, and especially use them when life and the tormented history of this nation will require it, as a need, without which our society could not shape its perspective for development.

The magnitude of the documents studied by the author is impressive, as well as the way he explored similar studies, international and domestic – the latter, unfortunately, not very, the way he knew to approach statistical methods and techniques, by valuing the information, most often inconsistent and irrelevant, due to objective circumstances, vicissitudes and precarious times, which were not generous with the statistical approaches and efforts of our great predecessors in order for them to provide a statistical material, if not complete and relevant, at least consistent through its compatibility and comparability.

This assertion refers not only to the 1862-1947 period, which has its specificity by the nature of its attempts of that time to develop statistics in consonance with the European approach, but also to the period of the centralized planned economy, in which most of the approaches at a methodological and statistical level, subordinated to the material production system, were totally detached from the European statistical system, resulted from which its substantial differences between the material production system and the system of national accounts. I will not go into details on these issues because they are synthetized with effective clarity and sharpness by the author and they shall become evident with the first reading of the book.

Professor Axenciuc's knowledge and, why not, his courage and temerity facing an endeavour of maximum difficulty and exceptional complexity should be highlighted.

The study is conditioned by two essential elements. The first one is the development of time series of the quantitative expression of economic growth indicators evolution in general, of its core sectors, of the compatibility and comparability congruence of these series, which, par excellence, represents the task of the national statistics office, namely the National Institute of Statistics. This is, or should be, the best equipped in order to be able to settle, in a unitary conception, the historical time series, this being not only a task, but also an obligation to the present and future generations. The second one is the idea of drafting historical time series, which inspired us too, members of the National Institute of Statistics, with the intention to offer them to us and posterity, when in 2009 we commemorated 150 years of official statistics. But the lack of funds and, especially, of the human resources to allocate to the study, forced us to stop on just editing a short history of the Romanian statistics. But we are satisfied with having made available to professor Axenciuc all the materials he requested and which he used in the best possible way.

The information and statistical data which constituted the basis for the author's information is spread beyond the statistical publications, unfortunately rather limited in volume during the period before 1990, so that he was also offered the sole alternative to accede to information so far confidential and unused. Therefore, we are considering the declassification of confidential aggregate information and make it available to users through our databases over a defined period of time.

I particularly appreciate the solution adopted by professor Axenciuc when using adequate converters according to scientific criteria and especially when using the purchasing power parity as a conversion and transformation element in a sole currency, in this case the dollar, in order to create the conditions of coherence and sustainability for data series. Otherwise, any other alternative sources, some identifiable with international organizations, such as the World Bank based on the exchange rate, or others, would have been justly criticized.

In conclusion, from now on, we shall need relatively more time to get deeper into the content of the study's statistical data and information, into the structures and in the absolute and relative data series expression and, especially, into the techniques, methods and solutions adopted by the author.

Irrespective of the way of action from now on, irrespective of the procedure or manner of use of this admirable study, researchers of the future will be forced to recognize its scientific value, the author's successful symbiosis to masterly approach both the scientific research and the applicative aspect, which gives the study the character of reference work, par excellence.

Bucharest, 2011

Professor Vergil Voineagu, Ph.D.
President of the National Institute of Statistics

Addendum 2

Historical background and aknowledgements for the Romanian edition[137]

This paper is the result of the research carried out by the author in the past four decades, reflecting the effort of previous studies in various forms and variants of the national income in Romania, calculated according to the system of material production (SMP) for the 1862-1938 period, to the gross domestic product in Romania, under the System of National Accounts (SNA) for the 1862-2000 period, according to the statistical methodology under the current structure.

The setting up of the national economy synthetic indicators was made according to the **production method**, for reasons described in the methodological introduction of the paper.

The research work covers the 1862-2000 period, arranged in three successive sub-periods, intervals: 1862-1947, 1950-1979, 1980-2000, out of which three modules with specific information and methodology have bases resulted: a) the component of the 1862-1947 period, representing the core work of the paper, was drafted according to the information collection and processing for primary operations to the elaboration of the GDP synthetic indicators; b) the module of the 1950-1979 period was achieved by converting data on the national income according to SMP, displayed in the official statistics, to the gross domestic product; c) the component of the 1980-2000 period was achieved through the transposition, in comparable prices, of the GDP data published in current prices, obtained from the National Institute of Statistics[138] and the National Bank of Romania[139].

In order to provide comparability for the entire period, the indicators of the three sub-periods, calculated initially in comparable national prices, specific to each period – 1913 lei, 1963 lei, 1990 lei – were brought to a common denominator by converting the data in lei into international dollars at the purchasing power parity – PPP – of years 1990 and 2000.

The calculations of homogenization and compatibility of the statistical data are explained in detail in the methodological introduction to each module.

The completed project looked as follows:

[137]Victor Axenciuc, *Produsul Intern Brut al României 1862-2000*, Editura Economică, Vol. I, București, 2012.
[138]*Statistical Yearbook of Romania*, 1990, 1991, 1996, 2001.
[139]National Bank of Romania, Annual Reports, 1991, 1995, 1997, 2002

Romania's Gross Domestic Product 1862 - 2000

Secular Statistical Series and Methodological Arguments

1st volume	**Romania's Gross Domestic Product 1862-2000. Synthesis of global indicators time series, by temporal sections**
Section **A**	Gross Domestic Product during the **1862-2000 period; general synthesis** of the integral statistical series of synthetic indicators, expressed in comparable prices, 1990 and 2000 PPP dollars; comparisons with Romania's GDP calculated by several foreign sources.
Section **B**	Gross Domestic Product during the **1862-1947 period**; synthesis of indicators according to the calculations detailed in the 2nd volume of the present paper; series of indicators displayed in comparable prices, 1913 lei, 1990 and 2000 PPP dollars.
Section **C**	Gross Domestic Product during the **1950-1979 period**; conversion calculations of the national income data (SMP) in gross domestic product, series of indicators displayed in comparable prices, 1963 lei, 1990 and 2000 PPP dollars
Section **D**	Gross Domestic Product during the **1980-2000 period**; compatibility calculations in comparable prices; series of indicators expressed in 1990 lei, 1990 and 2000 PPP dollars.
Addenda	Archive studies and genuinely innovative researches; statistical methodology and information related to Romania's gross domestic product.
2nd volume	**Romania's Gross Domestic Product 1862-2000. Detailed calculations and methods for compiling the series of indicators, according to resource activities, consisting of the following:**
1.	**Agriculture and forestry**: vegetal and animal agricultural production, forestry, fisheries, and others.
2.	**Industry:** mining industry, electric power industry, large manufacturing industry, handicraft and household production.
3.	**Constructions:** production of public buildings, transport routes, industrial constructions, urban constructions, housing and others.
4.	**Transport and communications:** railway transport services, animal traction, automotive services, electric services, river and sea services,

communications and telecommunications.

5. **Trade:** commercialization of agricultural, industrial and other products, on the domestic market, foreign trade of import and export.

6. **Banking and financial services, insurance services.**

7. **Public administration, defense:** education, health, culture, cults, social assistance and others.

8. **Use of real estate property**, imputed rents.

9. **Services of domestic employed workers.**

10. **Services of free professions.**

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Analytical, statistical, monographic sources, branches.
Periodical sources.

The author undertook the elaboration of the study starting from the importance and need of knowing one of the most relevant issues of Romania's structure and dynamics of the economic progress, in terms of its synthetic indicators, of its gross domestic product by resources. In the research the author adopted and applied, with severe rigor, those criteria backing the calculations, checked by strict methods, demanding the removing possible errors that would have resulted in the deformation of the results and thus ensuring the accuracy of data, so that they expressed more precisely the real value of the static indicators, making the data be closer to the historical reality.

As with any original theme, the quality and usefulness of these GDP statistical series will be certified by the future practice of knowledge and by further research in the field. We emphasize that for the indicator construction operations, the criteria and methodologies are explained so that the resulting data can be verified or possibly reconstructed in a better shape, by interested authors, there, in the case they would enjoy richer and more relevant statistical information as well as methodological improvements would be available.[140]

During the elaboration of the work, I have been guided by the conviction and aspiration that data and indicators obtained will be used for scientific research of historians, economists, sociologists, by all those who will undertake retrospective or prospective analyses on Romania's economic and social life. The statistics and macroeconomic indicator system,

[140] In a forthcoming paper, based on 1862-2000 GDP series, the national product-national income will be calculated, and the analysis of the dynamics and structure of these synthetic indicators will be drafted. At the same time, both limitations and reservations will be expressed by some authors on the scope and ways of estimating these macroeconomic aggregates.

over long periods of time, may therefore constitute landmark fundamentals for policies targeting the economic present and future of our country, focusing on cyclical characteristic secular developments and the nature of social and economic disparities and possibilities for convergence in European and global context.

At the end of this long investigations I realize how much truth is in Seneca's words: "Much remains to be done and much will remain. No one will be deprived of the chance to add something".

Any elaboration, especially one with a historical profile, is based on our predecessor's creative heritage; and for this paper, the information and analyses of the Romanian economists of the last century and a half, starting with D. P. Martian until now, have been very useful. I express gratitude to all those who, by their work, facilitated my investigation.

Special thanks are due primarily to my collaborators who have supported the development of the paper according to their training and capacity; I will mention them alphabetically: researchers Adrian Corcodel, Leontina Datcu, Gabriela Drăgan, PhD, Eugen Ghiorghiţă, PhD, Daniela Poenaru, Cornel Sârbu, and assistants lecturers Roxana Iordache, Adriana Marin, Georgeta Niţă, Georgeta Rőrich.

I received a sustained support on behalf of the Scientific Council of the Institute of National Economy of the Romanian Academy where the study, in its variants, was debated in the latest two decades. In this respect evaluation reports, with substantial improvement solutions, were developed by the following: Prof. Emilian Dobrescu, member of the Romanian Academy, Prof. Costin C. Kiriţescu, member of the Romanian Academy, Vasile Bogza, PhD, Constantin Ciutacu, PhD, statistician Elena Hlevca, researcher Vergiliu Iordache, Maria Molnar, PhD, Maria Mureșan, PhD, Maria Poenaru, PhD, Marin Popescu, PhD, Florin Pavelescu, PhD, Grigore Vâlceanu, PhD and other referents. These debates were enhanced by the improvement proposals for the content of the study by the following researchers: Prof. Gheorghe Zaman, president of the Scientific Council of the Institute of National Economy, corresponding member of the Romanian Academy, Constantin Grigorescu, PhD, Ion Bratu, PhD, Mircea Ciumara, PhD, Camelia Cămășoiu, PhD, Valentina Vasile, PhD, Aurelian Dochia, PhD, George Georgescu, PhD, Steliana Perţ, PhD, Vasile Pilat, PhD, Steliana Sandu, PhD, Sorica Sava, PhD, and others. The contribution of referents and participants in the debates represented a scientific investment in the quality of future work; I express my gratitude to all of them.

Of special importance was the discussion of the study in its final phase, in March 2011, within the extended Scientific Council of the Institute of National Economy. My thanks to those who read the study with interest, making judicious comments and assessments: Prof. Aurel Iancu, member of the Romanian Academy, Prof. Lucian Albu, member of the Romanian Academy, Prof. Gheorghe Zaman, corresponding member of the Romanian Academy, PhD Valentina Vasile, Ilie Dumitrescu, director of the National Institute of Statistics, Prof. Ion Răvar, Maria Molnar, PhD, Florin Pavelescu, PhD. I address special thanks to Prof. Vergiliu Voineagu, President of the National Institute of Statistics for the extensive scientific report, displayed in the Council, with comments on the content and importance of the study.

Part of the statistical and methodological information of the project on the national income and, subsequently, on the gross domestic product, and valuable analyses on the synthetic indicators, have been revealed from archival studies of the National Institute of Statistics. I also considered useful the fruitful discussions on the methodology for calculating synthetic indicators, in various stages of the research, with reputed statisticians from National Institute of Statistics, among whom I wish to mention the following: Vasile V. Dumitrescu, Ştefan Mateescu, Dumitru Şandru, Ilie Dumitrescu, Radu Halus, Maria Hlevca, Vladimir Alexandrescu, etc. This work would have been difficult to accomplish, without the documentary and methodological sources of the National Institute of Statistics.

The original information, obtained from various funds of the National Archives, helped me a lot in preparing the project; in this regard I mention the consistent support that I had on behalf of the head of the institution during this period, Ioan Scurtu, PhD and the archives staff who granted me professional assistance.

In the recent years, the Romanian National Committee, the ESEN Reflection Group of the Romanian Academy developed laborious debates on the draft of *"Romania's New Encyclopedia*", created under the aegis of the Romanian Academy; the ones dedicated to the theme of 2nd volume *"Romania's Evolution. Main Body of National Statistical and Historical Series and International Comparisons 1860-2007"*, highlighted the important procedures and methods with the view to structure and finalize our study *"Gross Domestic Product"*. I express my special gratitude to Prof. Tudorel Postolache, member of the Romanian Academy, initiator and coordinator of national encyclopedic work, for the valuable solutions proposed.

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